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Agriculture

Forest Service

Pacific Northwest
Region

1998

Land and Resource Management Plan

Olympic National Forest



LAND AND RESOURCE MANAGEMENT PLAN

for the

OLYMPIC NATIONAL FOREST PACIFIC NORTHWEST REGION

PREFACE

Preparation of a Land and Resource Management Plan (Forest Plan) for the Olympic National Forest is required by the Forest and Rangeland Renewable Resources Planning Act (RPA) as amended by the National Forest Management Act (NFMA). Regulations developed under the RPA establish a process for developing, adopting, and revising land and resource Plans for the National Forest System (36 CFR 219). The Plan has also been developed in accordance with regulations (40 CFR 1500) for implementing the National Environmental Policy Act of 1969 (NEPA). Because this Plan is considered a major Federal action significantly affecting the quality of the human environment, a detailed statement (environmental impact statement) has been prepared as required by NEPA. The Forest Plan represents the implementation of the Preferred Alternative as identified in the Final Environmental Impact Statement (FEIS) for the Forest Plan

If any particular provision of this Forest Plan, or application of the action to any person or circumstances is found to be invalid, the remainder of this Forest Plan and the application of that provision to other persons or circumstances shall not be affected.

Information concerning this plan can be obtained from.

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OLYMPIC NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN

TABLE OF CONTENTS

| TITLE | PAGE |
|---|-------|
| PREFACE | i |
| CHAPTER I - INTRODUCTION TO THE FOREST PLAN | |
| Purpose of the Forest Plan | I- 1 |
| Plan Structure and Organization | I- 2 |
| Relationship of the Forest Plan to Other Documents | I- 3 |
| Relationship to the Environmental Impact Statement and Record of Decision | I- 3 |
| Relationship to the Regional Guide | I- 3 |
| Relationship to the Pacific Northwest Region FEIS for Managing Competing and Unwanted Vegetation | I- 3 |
| Relationship to Project Planning | I- 3 |
| Forest Description | I- 4 |
| The Peninsula | I- 4 |
| The Forest | I- 7 |
| Other Lands | I- 7 |
| CHAPTER II - SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION | |
| Introduction | II- 1 |
| Key Issue-Related Outputs | II- 2 |

| TITLE | PAGE |
|------------------------|-------------|
| Scenery | II- 2 |
| Recreation | II- 4 |
| Old-Growth Forest | II- 8 |
| Timber Harvest Level | II- 9 |
| Sediment | II- 12 |
| Fish Habitat | II- 13 |
| Wildlife Habitat | II- 15 |
| Unroaded Areas | II- 17 |
| Wild and Scenic Rivers | II- 19 |
| Summary | II- 20 |
| Information Needs | II- 22 |

CHAPTER III - RESPONSE TO ISSUES, CONCERNS AND OPPORTUNITIES

| | |
|--|---------|
| Introduction | III- 1 |
| Response to the Issues | III- 2 |
| Management of the Scenic Resource | III- 2 |
| Management of Outdoor Recreation | III- 3 |
| Management of Old-Growth | III- 4 |
| Timber Management Areas and Amount of Harvest | III- 5 |
| Management of Transportation System | III- 6 |
| Management of Soil and Water Resources | III- 7 |
| Management of Fish and Wildlife Habitat | III- 7 |
| Management of Unroaded Areas | III- 11 |
| Wild, Scenic and Recreational River Corridors | III- 11 |
| Native Plant Species | III- 11 |
| Local Communities | III- 12 |
| Management of the Shelton Cooperative Sustained Yield Unit | III- 12 |
| American Indian Concerns | III- 13 |

CHAPTER IV - FOREST MANAGEMENT DIRECTION

| | |
|---|--------|
| Introduction | IV- 1 |
| Forest Management Goals | IV- 1 |
| Goals for Coordination With Other Agencies and the Public | IV- 1 |
| Goals for Resource Programs | IV- 2 |
| Goals for Support Programs | IV- 6 |
| Forest Management Objectives | IV- 7 |
| Projected Outputs | IV- 8 |
| Resource Summaries | IV- 11 |

| TITLE | PAGE |
|--|-------------|
| Desired Future Condition of the Forest | IV- 33 |
| The Forest in Ten Years | IV- 33 |
| The Forest in Fifty Years | IV- 38 |
| Forest-Wide Standards and Guidelines | IV- 43 |
| Standards and Guidelines - Management Area Prescriptions | IV- 61 |
| A1A-Undeveloped Recreation (Non-Motorized) | IV- 63 |
| A1B-Undeveloped Recreation (Motorized) | IV- 66 |
| A2-Scenic | IV- 68 |
| A3-Developed Recreation Sites and Administrative Sites | IV- 70 |
| A4A-Wild, Scenic, and Recreational Rivers | IV- 74 |
| A4B-River Corridors | IV- 78 |
| BI-Wilderness | IV- 82 |
| CI-Spotted Owl Habitat Areas (SOHAs) | IV- 86 |
| C2-Pileated Woodpecker/Pine Marten Habitat | IV- 89 |
| C3-Bald Eagle Management Areas | IV- 92 |
| E1 -Timber Management | IV- 95 |
| FI-Municipal Watersheds | IV- 98 |
| F2-Riparian Areas | IV- 101 |
| J2-Research Natural Areas (Existing and Potential) | IV- 105 |
| J3-Botanical Areas | IV- 108 |

CHAPTER V - IMPLEMENTATION OF THE FOREST PLAN

| | |
|------------------------------------|------|
| Introduction | V- 1 |
| Implementation Direction | V- 1 |
| Project Scheduling | V- 1 |
| Consistency With Other Instruments | V- 1 |
| Budget Proposals | V- 2 |
| Environmental Analysis | V- 3 |
| Monitoring and Evaluation | V- 3 |
| Amendment and Revision | V- 6 |

| TITLE | PAGE |
|--|-------------|
| APPENDICES | |
| Appendix A- Project Schedules | A- 1 |
| Timber Sale Program Schedule | A- 2 |
| Developed Recreation Sites | A- 12 |
| Undeveloped Recreation | A- 14 |
| Trails | A- 15 |
| Trailheads | A- 17 |
| Interpretation | A- 19 |
| Wilderness | A- 20 |
| Scenery | A- 21 |
| Wild and Scenic Rivers | A- 22 |
| Cultural Resources | A- 23 |
| Wildlife | A- 26 |
| Fisheries | A- 32 |
| Threatened, Endangered and Sensitive Species | A- 37 |
| Silviculture Activities | A- 42 |
| Soil and Water | A- 48 |
| Road and Bridge Capital Investments | A- 47 |
| Buildings, Water and Sewer Capital Investments | A- 48 |
| Special Use Administration | A- 49 |
| Land Exchange | A- 49 |
| Rights-of-Way Acquisition | A- 49 |
| Land Line Location | A- 50 |
| Minerals Management | A- 50 |
| Appendix B - Monitoring Worksheets | |
| Introduction | B- 1 |
| Individual Monitoring Worksheets | B- 2 |

| TITLE | PAGE |
|--|-------------|
| Semi-Primitive and Primitive Recreation | B- 3 |
| Trails | B- 5 |
| Scenery | 8- 7 |
| Developed Recreation Sites | B- 9 |
| Wilderness | B- 11 |
| Off-Road Vehicles (ORV) | B- 13 |
| Wild and Scenic Rivers | B- 15 |
| Cultural Resources | B- 17 |
| Coordination with American Indians | B- 19 |
| Cultural and Historical Site Protection | B- 21 |
| Cultural and Historical Site Rehabilitation | B- 23 |
| Wildlife Habitat | B- 25 |
| Fish Habitat | B- 29 |
| Water Quality | B- 32 |
| Watershed Cumulative Effects | B- 35 |
| Riparian Areas | B- 37 |
| Soil Productivity | B- 39 |
| Air Quality | B- 41 |
| Economic Considerations - Costs and Values | B- 43 |
| Budgets | B- 46 |
| Social and Economic Effects | B- 48 |
| Standards and Guidelines-General | B- 51 |
| Project Environmental Analysis Documentation | B- 52 |
| Road Mileage | B- 54 |
| Minerals Development and Rehabilitation | B- 56 |
| Insect and Disease Control | B- 58 |
| Timber Offered | B- 60 |
| Silvicultural Practices | B- 62 |
| Lands Suitable for Timber Management | B- 65 |
| Old-Growth | B- 67 |
| Native Plants | B- 69 |

ABBREVIATIONS AND ACRONYMS

GLOSSARY

LIST OF TABLES

| TABLE NO. | TITLE | PAGE |
|-----------|---|--------|
| II- 1. | Relative Demand for Scenic Quality | II- 3 |
| II- 2. | Acres, RVD Capacity and Demand by ROS Class | II- 6 |
| II- 3. | Projected Demand for Developed Site Capacity | II- 6 |
| II- 4. | Projected Demand for Trails | II- 7 |
| II- 5. | Recreation Supply Potential | II- 7 |
| II- 6. | Current Chargeable Annual Allowable Sale Quantity | II- 10 |
| II- 7. | Projected Demand for National Forest Timber | II- 12 |
| II- 8. | Projected Fisheries Outputs | II- 14 |
| II- 9. | Relative Demand for Fishery Outputs | II- 15 |
| II- 10. | Relative Demand for Wildlife Outputs | II- 17 |
| II- 11. | Summary of Demand and Supply Projections for Key Issue-Related Outputs | II- 21 |
| III- 1. | Estimated Acreage of Old-Growth by Management Area Allocations | III- 5 |
| III- 2. | Estimated Potential Annual Fishery Outputs On-Forest Habitat Only | III- 9 |
| IV- 1. | Resource Output Summaries | IV- 8 |
| IV- 2. | Projected Sediment Indices | IV- 13 |
| IV- 3. | Timberland Classification | IV- 14 |
| IV- 4. | Timber Productivity Classification of Suitable Lands | IV- 14 |
| IV- 5. | Silvicultural Treatments | IV- 15 |
| IV- 6. | Allowable Sale Quantity and Timber Sale Program Quantity | IV- 16 |
| IV- 7. | Relationship of ASQ to LTSYC | IV- 17 |
| IV- 8. | Age Class Distribution | IV- 17 |
| IV- 9. | Projected Old-Growth | IV- 18 |
| IV- 10. | Projected Fishery Outputs | IV- 21 |
| IV- 11. | Projected Total Suspended Particulates (TSP) | IV- 21 |
| IV- 12. | Projected Demand for Developed Site Capacity | IV- 23 |
| IV- 13. | Projected Demand for Trails | IV- 24 |
| IV- 14. | Viewshed Visual Condition | IV- 25 |
| IV- 15. | River Allocations | IV- 27 |
| IV- 16. | Current and Future Unroaded Acreages by Area | IV- 28 |
| IV- 17. | Projected Road Construction (Miles per Decade) | IV- 29 |
| IV- 18. | Projected Road Use Management | IV- 30 |
| IV- 19. | Restrictions on Mineral Activity | IV- 31 |
| IV- 20. | Management Area Allocations | IV- 62 |
| V- 1. | Disposition of Existing Olympic National Forest Plans | V- 2 |
| V- 2. | Summary of Monitoring Items | V- 8 |

LIST OF FIGURES

| FIGURE NO. | TITLE | PAGE |
|------------|-----------------------|-------|
| I- 1 | Vicinity Map | I- 6 |
| I- 2 | Ranger Districts | I- 9 |
| I- 3 | Landownership | I- 10 |
| V- 7 | Decision Flow Diagram | V- 7 |

Chapter I

Introduction to the Forest Plan



Olympic National Forest

Chapter I

INTRODUCTION TO THE FOREST PLAN

PURPOSE OF THE FOREST PLAN

The Forest Plan guides all natural resource management activities and establishes management Standards and Guidelines for the Olympic National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

The Forest Plan:

1. Establishes Forest-wide multiple-use goals and objectives
2. Establishes Forest-wide standards and guidelines applying to future activities
3. Establishes management area direction, including management area prescriptions and standards and guidelines applying to future management activities within management areas
4. Establishes the allowable sale quantity for timber and identifies land suitable for timber management
5. Establishes monitoring and evaluation requirements

The Forest Plan embodies the provisions of the National Forest Management Act of 1976 and its implementing regulations, as well as other guiding documents. Land use determinations, prescriptions, and standards and guidelines are statements of the Plan's management direction; however, the projected outputs, services, and rates of implementation are estimates and are dependent on the annual budgeting process.

The Forest Plan incorporates the Pacific Northwest Region's FEIS for Managing Competing and Unwanted Vegetation. In implementing the Plan through project activities, the Forest will comply with the Record of Decision issued by the Regional Forester dated December 8, 1988, and the Mediated Agreement of May, 1989. Use of all vegetation management techniques is allowed only when other methods are ineffective or will unreasonably increase project costs. Emphasis must be on prevention and early treatment of unwanted vegetation, and on full public involvement in all aspects of project planning and implementation. Information about the vegetation management FEIS, ROD, and Mediated Agreement are available at the Forest Supervisor's Office.

PLAN STRUCTURE AND ORGANIZATION

This Plan will ordinarily be revised on a 10-year cycle, with a maximum of 15 years between Plan revisions

PLAN STRUCTURE AND ORGANIZATION

The Forest Plan document is composed of five chapters, a glossary, and appendices.

Chapter I introduces the reader to the purpose of the Plan, describes what it contains, discusses the Plan's relationship to other documents, and describes the Olympic National Forest's geographic location and general characteristics.

Chapter II is a summary of the Analysis of the Management Situation. Included are summaries of the current management situation for important issue-related resources, potential supply estimates for various resource goods and services, and a brief look at demand projections. Also included in Chapter II is a listing of research and inventory needs identified during the planning process.

Chapter III summarizes the public issues, management concerns, and resource management opportunities identified through the planning process and described in the Environmental Impact Statement. This chapter briefly explains how each is responded to by the land allocation and direction in the Forest Plan.

Chapter IV is the heart of the Plan, and contains the multiple-use resource goals which the Forest has established for the planning period. Accompanying this are the projected resource outputs, some of the management activities, and the budget necessary to achieve the stated goals. The outputs and activities are estimates of what will be produced, or what will occur, with full implementation of the Plan. The output objectives are followed by resource narratives that provide insights into how the major resource components will be managed.

Chapter IV also contains standards and guidelines for Plan implementation. They apply to everyday on-the-ground projects and cover a wide range of resources. Some are specific and others provide general direction to follow. This chapter also contains management area descriptions. Prescriptions for the management areas define types of activities that can occur within an area. The locations of the various management areas within the Olympic National Forest are shown on the map for Alternative C-Preferred (Modified), the preferred alternative, included in the FEIS.

Chapter V contains direction for implementing the Plan, the monitoring and evaluation program, and procedures that will be followed should amendments or revisions to the Plan be necessary. As the Forest Plan is implemented, it will be monitored to determine if the output projections and standards and guidelines in Chapter IV are being met, whether the standards and guidelines are adequate to achieve management goals and, if not, what needs to be changed to achieve the stated goals. Results of this monitoring will be used to evaluate whether estimates and assumptions made during the planning process are appropriate, and whether amendment to or revision of the Plan is warranted.

The Glossary defines terms used in this document that are not normally found in a dictionary, or are used in a context differently than is usually recognized.

The appendices include detailed schedules of projected activities by resource, background information regarding development of the monitoring plan, and a discussion of Best Management Practices (BMPs).

RELATIONSHIP OF THE FOREST PLAN TO OTHER DOCUMENTS

RELATIONSHIP TO THE ENVIRONMENTAL IMPACT STATEMENT AND RECORD OF DECISION

This Forest Plan sets forth the preferred alternative for managing the resources of the Olympic National Forest. The Plan results from extensive analysis and considerations that are addressed in the accompanying Environmental Impact Statement (EIS) and Record of Decision (ROD). The EIS also describes the range of alternatives considered in the planning process. For purposes of complying with the National Environmental Policy Act (NEPA), this Plan and the FEIS are treated as combined documents.

Activities and projects will be planned and implemented to carry out the direction in this Plan. The management direction is presented in Chapter IV of this document, and the activities and projects are included in the various appendices. The Forest will perform environmental analyses on these projects and activities. The project-level environmental analysis will use the data and evaluations in the Plan and final EIS as its basis. Documentation of the project-level analysis will be tiered to the FEIS accompanying this Plan.

RELATIONSHIP TO THE REGIONAL GUIDE

The Regional Guide for the Pacific Northwest Region of the Forest Service, as amended December 8, 1988, provides direction for National Forest Plans. Standards and guidelines addressing major public issues and management concerns were considered at the Regional level to facilitate forest planning. Direction in the Regional Guide, including standards and guidelines, is incorporated into this Plan.

RELATIONSHIP TO THE PACIFIC NORTHWEST REGION FEIS FOR MANAGING COMPETING AND UNWANTED VEGETATION

This Plan incorporates the Pacific Northwest Region's FEIS for Managing Competing and Unwanted Vegetation. In implementing the Forest Plan through project activities, the Forest will comply with the Record of Decision issued by the Regional Forester dated December 8, 1988, and the Mediated Agreement of May 1989. Use of all vegetation management techniques is allowed only when other methods are ineffective or will unreasonably increase project costs. Emphasis must be on prevention and early treatment of unwanted vegetation, and on full public involvement in all aspects of project planning and implementation.

RELATIONSHIP TO PROJECT PLANNING

The Forest Plan serves as the single land management plan for the Olympic National Forest. All other land management plans are replaced by direction in this Forest Plan. See Chapter V for a listing of plans superseded by this Forest Plan. Resource management objectives are presented in Chapter IV, and schedules of resource management practices for each management area are displayed in Appendix A.

Implementation and action plans designed to give further guidance for management and development activities are revised or developed under the umbrella of this Forest Plan. Some existing implementation plans may be consistent with the Forest Plan and may be maintained in their current form. These, in

FOREST DESCRIPTION

effect, become part of the management direction and implementation package for the Forest. For a listing of these implementation plans or studies, see Chapter V.

The management direction provided by the Forest Plan comprises the framework within which project planning and activities take place. It defines management area goals and management standards that guide project activities toward achieving the desired future condition for the management area and, collectively, for Olympic National Forest. It also specifies a schedule for project activities and management practices, and provides guidance concerning potential projects and project limitations, including assumptions about the appropriate vegetation management practices for timber sale projects. On-the-ground project analyses verify the appropriateness of those assumptions.

Within this guidance, projects are developed to most efficiently and effectively accomplish management goals and objectives. All NEPA requirements will be complied with for all projects.

Project environmental analyses provide an essential source of information for Forest Plan monitoring. First, as project analyses are completed, new or emerging public issues or management concerns may be identified. Second, the management direction designed to achieve management area goals is validated. Third, the site-specific data collected for project environmental analyses serve as a check on the appropriateness of the land allocation. The information included in project environmental analyses is used in the monitoring process to determine if and when changes should be made to the Forest Plan.

FOREST DESCRIPTION

THE PENINSULA

The Forest is located on the Olympic Peninsula in the northwest portion of Washington State. The Peninsula is a separate and unique geographical area surrounded on three sides by saltwater. U.S. Highway 101 is the main travel route, paralleling the Pacific Coast on the west, Strait of Juan de Fuca on the north, and Hood Canal and the inland waters of Puget Sound on the east. This 6,500 square mile area is an association of complex winding ridges, rugged and steep mountains, deep canyons, and tree-covered slopes. Because of the extremely rugged topography, there are no through routes crossing the center of the Peninsula. Refer to Figure I-1 for a general vicinity map.

The first people who lived on the Olympic Peninsula were American Indians whose ancestors are believed to have migrated from Asia by way of Alaska. No one knows how long these American Indians were present before European settlers arrived. Archaeological work now being conducted indicates they had lived here for many centuries.

Explorers made contact with the coastal region more than three centuries before the interior was investigated. The Press Expedition explored the mountainous core in the 1890's. After early explorations, the inland Peninsula saw little development. Almost all settlement on the Olympic Peninsula is along saltwater. A major portion of the Peninsula's population is in the towns of Aberdeen, Hoquiam, Forks, Port Angeles, Sequim, Port Townsend, and Shelton.

An incredible variety of environments occurs within short distances on the Peninsula. Within the less than fifty miles between the Pacific Ocean and Mt Olympus, the vegetation changes from the lush, temperate rain forests of the Hoh, Queets, and Quinault River valleys to an arctic environment of lichens and mosses. More than one hundred species of wild flowers have been identified on the National Forest.

FOREST DESCRIPTION

alone; eight native only to the Olympic Mountains occur in the Arctic-alpine zone. The major commercial wood-producing trees are Douglas-fir, western hemlock, western redcedar, and Pacific silver fir.

Precipitation is heavy in the fall and winter, reaching a peak in December and decreasing in spring. The driest area is the northeastern corner, which receives less than 25 inches of precipitation a year. The wettest areas, with more than 220 inches annually, are on the windward side of Mount Olympus and in the upper Clearwater River drainage. Winter snowfall ranges from less than 10 inches in the lower valleys to more than 250 inches in the higher mountains. Summers are relatively dry and mild, with the warmest temperatures averaging near 75 degrees F. Winters are wet and mild, with temperatures in the lowlands seldom dropping below 20 degrees F.

The Peninsula is generally thought of as an area characterized by steep, mountainous terrain dissected by large rivers that radiate from the center. Although this is an accurate description for much of the area, the south and west sides also have extensive areas of flat, gentle topography with rolling foothills. Soils have formed from a variety of geologic materials. In general, soils developed from marine basalt predominate in the south and east, while those derived from sedimentary deposits are most common in the north and west. Metamorphosed sediments and volcanics are found at higher elevations toward the interior. Soils derived from continental glacial drift are located at lower elevations along the northern and eastern flanks of the Olympic Mountains.

Many recreational opportunities exist throughout the year. Visitors and residents enjoy auto touring, camping, picnicking and backpacking, which are most popular during spring and summer. Fishing, hunting, berry picking, and Christmas tree cutting are enjoyed during the fall and winter months.

The largest Roosevelt elk population in the United States resides on the Peninsula. It is estimated there are between five and seven thousand elk in the herds using Federal land. With individual animals often weighing more than 600 pounds, elk are a major attraction for both viewing and hunting. Other common animals are black-tailed deer, black bear, marmot, and mountain goat. The goat is not a native Peninsula species, having been introduced in the 1920's. Less commonly seen animals are mountain lion, bobcat, coyote, beaver, marten, otter, mink, raccoon, and skunk.

There are over 250 species of birds common to the Olympic Peninsula. Both golden and bald eagles are frequently sighted, although few nests have been located.

The many lakes, rivers, and streams, as well as the surrounding bodies of saltwater, offer outstanding fisheries. Anadromous fish include steelhead trout, Pacific salmon, and sea-run cutthroat trout. Resident fish include cutthroat, eastern brook, and rainbow trout, as well as Dolly Varden char.

FOREST DESCRIPTION

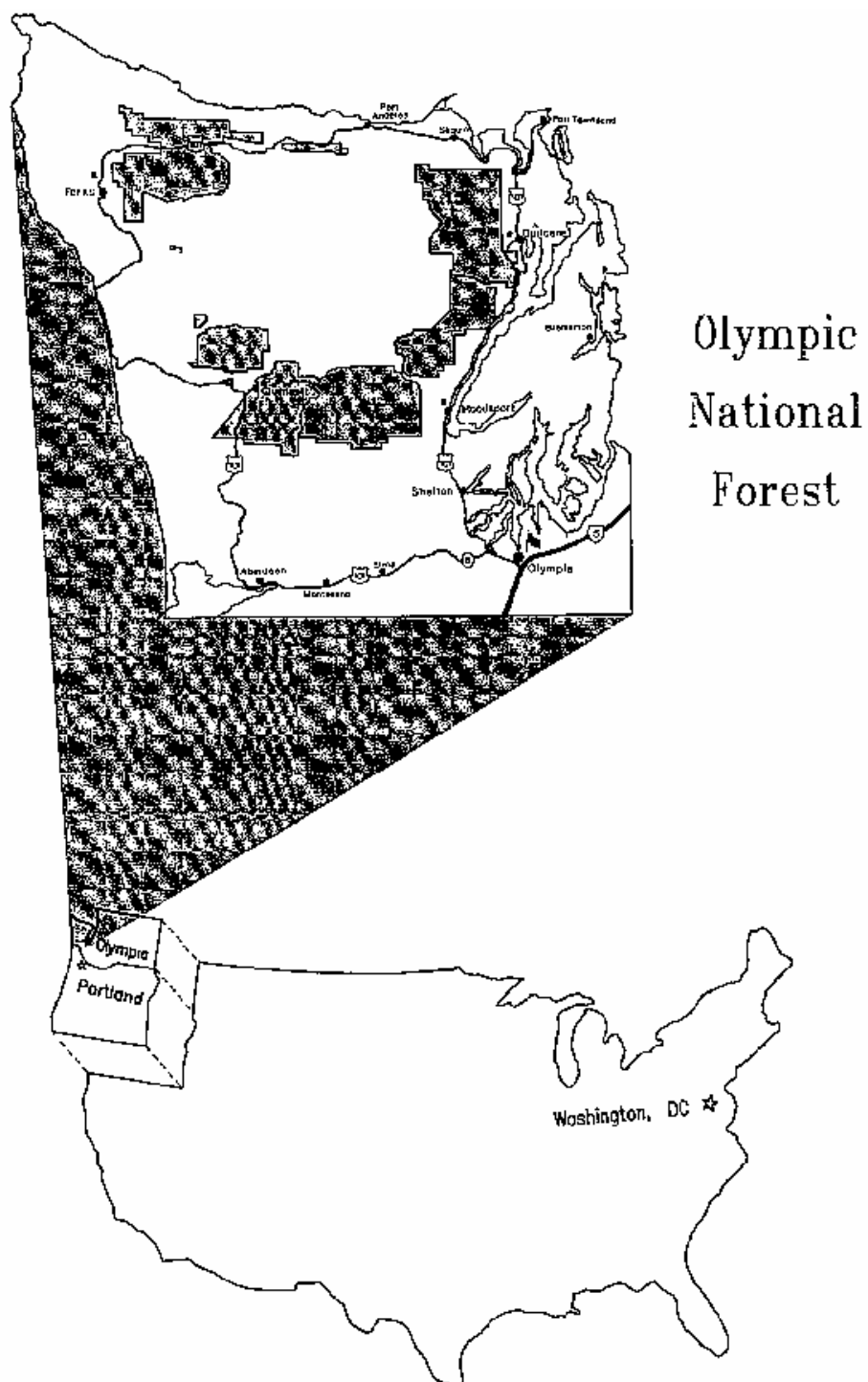


Figure I-1. VICINITY MAP

THE FOREST

The Olympic National Forest was designated a Forest Reserve in February 1897. President Cleveland signed the proclamation, which included 1,500,000 acres of public land on the Olympic Peninsula. On three separate occasions between 1897 and 1909, proclamations added or subtracted land from the Reserve. In 1905, the name Olympic Forest Reserve was changed to Olympic National Forest. The core of the Olympic National Forest was proclaimed Mount Olympus National Monument by President Theodore Roosevelt in 1909. The Monument was transferred from the jurisdiction of the Forest Service, Department of Agriculture, to the Park Service, Department of Interior in 1933, and became Olympic National Park in 1938. Since 1909, there have been several land transfers between the Forest and the Park.

Lands administered by the Olympic National Forest now occupy approximately 632,300 acres in Clallam, Jefferson, Grays Harbor, and Mason Counties. There are approximately 67,200 acres of private land and land administered by other government agencies within the boundary of the Forest, mostly on the west side.

National Forest lands are administered under the direction of a Forest Supervisor headquartered in Olympia, Washington. The Supervisor is supported by a headquarters staff, and by personnel on Ranger Districts located in Hoodport, Quilcene, and Forks, and on the south shore of Quinault Lake. See Figure I-2.

Principal forest resources include the vegetation (especially the trees), water, wildlife, fish, recreation, and Wilderness

There are also about 250,000 acres of land owned by Simpson Timber Company directly affected by this Plan. Simpson's land, and approximately 111,300 acres of National Forest land in the Hood Canal Ranger District, are managed as the Shelton Cooperative Sustained Yield Unit (Shelton CSYU).

OTHER LANDS

Other major land ownerships on the Olympic Peninsula that have a bearing on the environment and the Forest include Olympic National Park, the State of Washington Department of Natural Resources (DNR), several Indian Reservations, and private land (much of which is managed by large timber companies). Refer to Figure I-3 for an idea of the relationship of major ownerships.

Olympic National Park is the largest land manager, with 916,136 acres in the center of the Peninsula and in a narrow strip along the Pacific Ocean. Most of the major rivers originate within the Park. No roads go through the Park, although there are several within the boundary. In November, 1988 Congress created the 876,669 acre Olympic Wilderness within the Park. Within this Wilderness, recreation opportunities are limited to those associated with the Primitive end of the Recreation Opportunity Spectrum, such as hiking, backpacking, fishing, horseback riding, and mountain climbing. Approximately 701,000 acres of this Wilderness provide Primitive recreation opportunities, and the remaining 173,000 acres provide Semi-Primitive Non-Motorized recreation opportunities. A total of 39,467 acres of the Park are outside Wilderness, and provide opportunities that are common to the Roaded end of the Spectrum, such as auto camping, picnicking, boating, hiking nature trails, staying and eating at lodges, and viewing nature exhibits at visitor centers. Olympic National Park recreation facilities consist of 600 miles of trail (mostly in Wilderness), 19 campgrounds, 9 picnic sites, 6 boating sites, 7 visitor centers or museums, and 4 lodges or resorts.

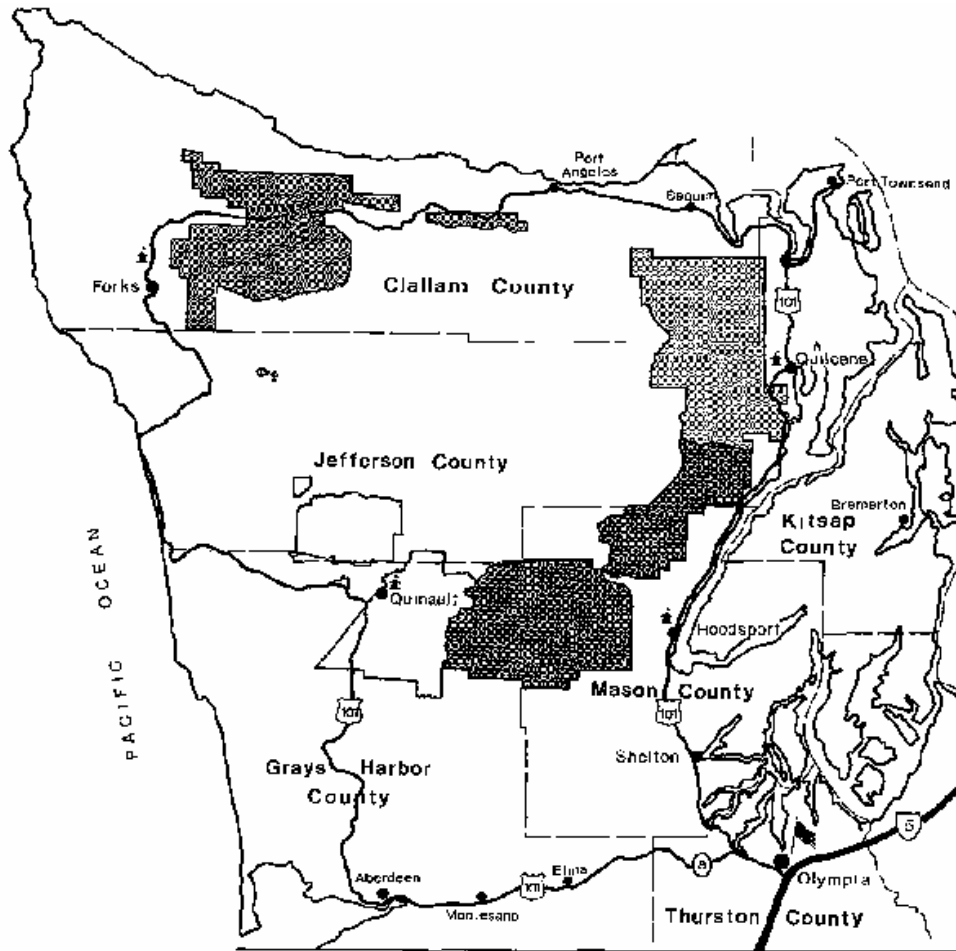
FOREST DESCRIPTION

The State of Washington DNR manages over 364,700 acres, mostly on the west side of the Peninsula. Timber production is the primary use, and current plans call for extensive harvesting of overmature forest stands. Recreation opportunities provided by the DNR are primarily at the Roded end of the Spectrum. They include 9 campgrounds, 2 picnic sites, and 17 boating sites. Washington State Parks provide opportunities primarily for developed recreation. There are a total of 18 State Parks on the Olympic Peninsula, which provide a combination of experiences including camping, picnicking, and boating.

The various Indian Reservations include over 236,000 acres, with the Quinault, Makah, and Skokomish Reservations being the largest. The major activity has been timber harvesting, but management emphasis is changing as the acreage of overmature forest declines and more of the management and planning responsibility is assumed by tribal agencies. Newer management plans call for less emphasis on the timber resource and more emphasis on traditional values. Special consideration is being given to multiple-use management, especially for fish and wildlife, in association with the timber commodity.

Various forest industry corporations manage approximately 915,000 acres (excluding Simpson's Shelton CSYU land) in the four-county Peninsula area. Again, the predominant use is for timber production. Past activities have converted the area to young forests. Expectations are that these lands will continue to be managed primarily for the production of timber commodities.

There are also numerous landowners with smaller acreage within and adjacent to the Forest boundary. The trend over the last decade has been toward more subdivision of these, with the subsequent construction of residences or other facilities reducing the acreage being managed for forest products. This is particularly true on the east side of the Forest. There are also several private recreation developments, primarily along State Highway 101. These provide a few additional facilities for developed camping, picnicking, and boating.



LEGEND








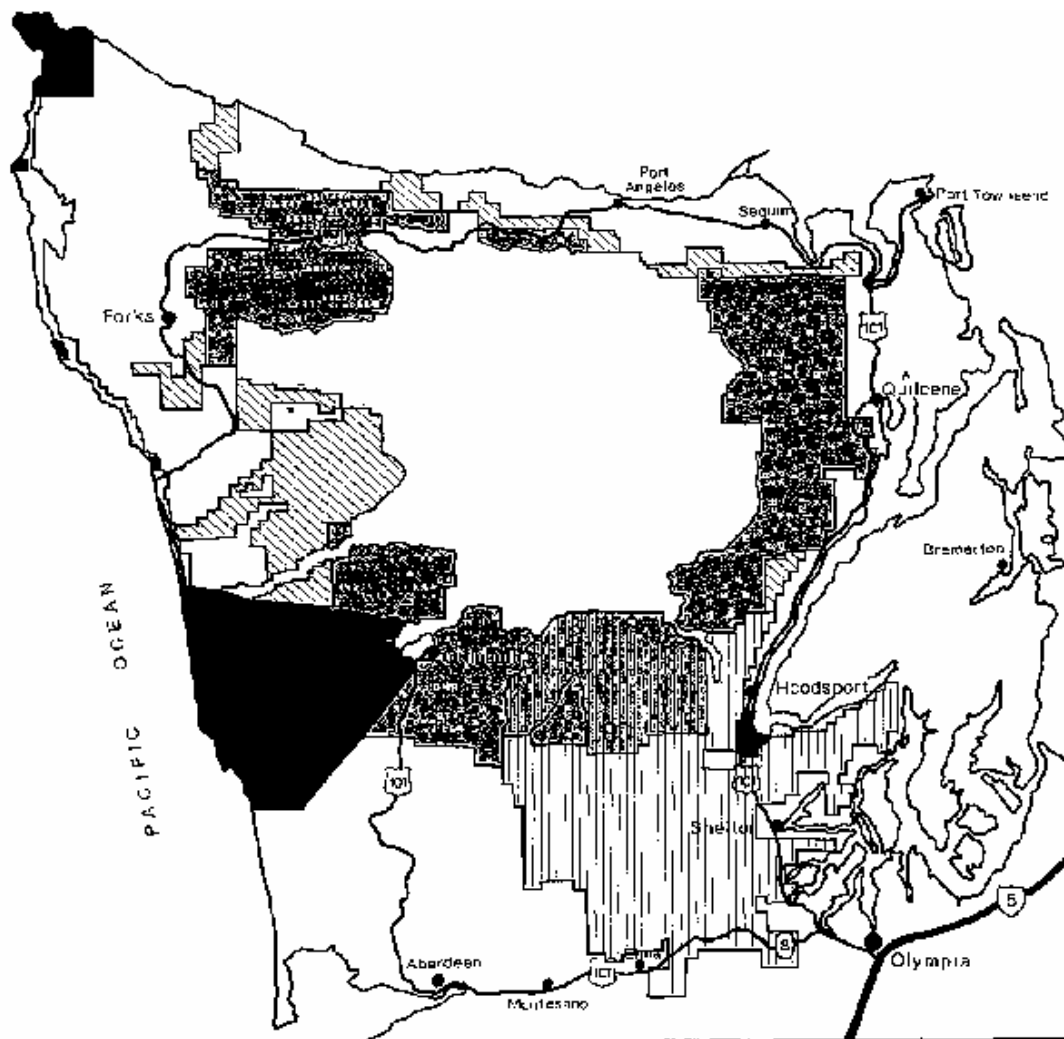
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|---|----------------------------|---|------------------------|
|  | Hood Canal Ranger District |  | Ranger Station |
|  | Quileene Ranger District |  | Supervisors Office |
|  | Quinalt Ranger District |  | County Line Boundaries |
|  | Soloduck Ranger District | | |

Figure I-2 RANGER DISTRICTS

FOREST DESCRIPTION



LEGEND







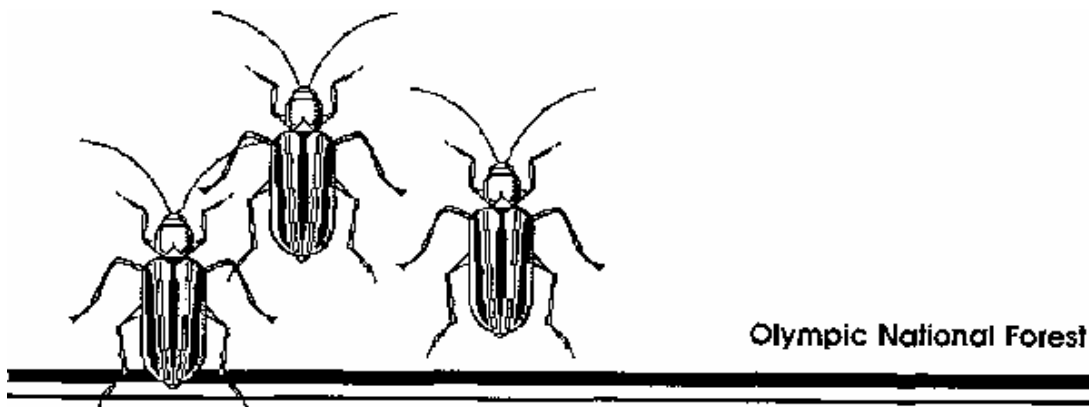
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|  | Olympic National Forest |  | State of Washington |
|  | Shelton CSYU |  | Indian Reservation |
|  | Olympic National Park |  | Private Ownership |

Figure I-3. LANDOWNERSHIPS

Chapter II

Summary of the Analysis of the Management Situation



Olympic National Forest

Chapter II

SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

INTRODUCTION

The purpose of this chapter is to briefly describe the Forest's Analysis of the Management Situation (AMS). This step of the planning process, conducted prior to the development of alternatives, was designed to identify key relationships between current management of the Forest, the desires of the public, and the production possibilities available to Forest managers. The AMS was structured to accomplish four principal goals, as follows.

1. Develop projections of demand for outputs related to public issues and management concerns
2. Estimate the output levels that would be associated with continuation of current management direction into the future
3. Estimate the maximum potential ability of the Forest to supply goods and services related to issues and concerns
4. Integrate the results of the above steps into a definition of the Forest's range of opportunities to resolve issues and concerns. This integration of potential supply possibilities with estimates of future demand, when considered in light of the expected consequences of continuing current management direction, served as the basis for the development of land management alternatives

Demand projections were developed for issue-related outputs on the basis of available information regarding present and anticipated future needs, desires, and (where appropriate) market conditions. Detailed information regarding the individual outputs discussed in this chapter, including the estimation of future demand, may be found in Chapter III of the accompanying FEIS. The expected outputs associated with continuation of current management direction were derived from analysis of Alternative A-Current Direction (No Action), as described in the FEIS.

Estimates of potential supply were generated through the analysis of numerous resource maximization benchmarks, each designed to identify the Forest's maximum potential to produce a specific issue-related output. These benchmarks were developed to include basic requirements for managing the Forest, such as the set of Management Requirements associated with land management alternatives, and are fully described in Appendix B of the FEIS. Further information regarding the AMS can also be found in the Olympic National Forest "Analysis of the Management Situation." Although it is now out of print, copies may be reviewed at the Olympic National Forest office in Olympia.

KEY ISSUE-RELATED OUTPUTS

The individual discussions which follow cover, output by output, the demand projections, estimates of potential supply, and current direction output levels associated with key issue-related resources analyzed in the AMS. Supply, demand, and output data associated with these resources are also summarized in Table II-11. The concluding section of this chapter, "Information Needs," lists several research and inventory items that have been identified in the course of the planning process as information that will be useful or necessary in monitoring implementation of this Forest Plan and/or developing revisions to this Plan.

KEY ISSUE-RELATED OUTPUTS

SCENERY

The Olympic National Forest is seen from many key recreation roads on the Olympic Peninsula U.S. Highway 101, several State, county, and Olympic National Park roads, and most Forest roads provide views of National Forest lands. Many of these roads have high visitor sensitivity. There are also several high-use recreation areas and sites that involve scenic backdrops. These include popular recreation areas, such as Quinault Lake, Lake Cushman, Hood Canal, and Lake Crescent, as well as the metropolitan areas of Puget Sound (Olympia, Tacoma, Seattle, Everett, Bremerton) and the local communities of the Olympic Peninsula.

Much of the Forest has experienced intensive timber management during the past 30 years. Roads and clearcut patches are evident in all major drainages. As a whole, the Forest today provides a wide range of vegetative diversity. Forest stands ranging from large old-growth to recently harvested and planted areas are present throughout.

The scenic resource has been inventoried in order to develop Visual Quality Objectives (VQOs). The VQOs specify, in relative degrees, levels of deviation from a natural-appearing landscape which are acceptable. The categories of scenic quality are defined as follows:

Preservation. Generally only ecological changes are evident

Retention. Management activities are not evident to the casual Forest visitor

Partial Retention. Management activities may be evident, but must remain subordinate to the characteristic landscape.

Modification. Management activities may dominate the landscape, but they follow naturally established form, line, color, and tenure.

Maximum Modification. Management activities may dominate the landscape, but they should appear as natural occurrences when viewed in the background

Current Management

Currently, there are two areas on the Forest for which the inventoried VQOs must be met when designing and implementing management activities. These are: (1) the east face of Quilcene Ridge (Green Mountain) as viewed from U.S. Highway 101 and Puget Sound, and (2) the west and north faces of South Quinault Ridge as viewed from Quinault Lake, Olympic National Park, and U.S. Highway 101. In addition, there are two existing land allocations having the primary objective of maintaining scenic

KEY ISSUE-RELATED OUTPUTS

quality: the “no harvest” allocation in the Mt. Ellinor-Mt. Washington area, and the streamside management allocations within the Wynoochee, Skokomesh, and Satsop River drainages. There are also five Wildernesses (88,265 acres) and one Research Natural Area (1,468 acres), all of which have the Preservation VQO.

Attainment of the Preservation VQO within Wildernesses and the Research Natural Area is specified in all alternatives Modification and Maximum Modification VQOs can be met without significant effect on customary management practices. Therefore, the primary concern with respect to scenic quality is the management to be applied to land having inventoried VQOs of Retention or Partial Retention. Changes in normal timber harvest practices and other management activities are necessary on such land if VQOs are to be met. It is the degree to which these areas are managed to meet VQOs that forms the key element in assessing scenic quality.

The Forest currently has 18 Sensitivity Level 1 viewsheds, which indicate that a high level of scenic protection is needed, and two Sensitivity Level 2 viewsheds, which indicate a moderate level of scenic protection. Approximately 90,000 acres of the Forest are within these 20 viewsheds (refer to FEIS Chapter III, “Scenery”). The Visual Quality Objectives currently inventoried within these viewsheds are as follows:

| | |
|------------------------|--------------|
| Retention (R) | 22,600 acres |
| Partial Retention (PR) | 67,500 acres |

Continued implementation of current direction will result in a substantial decline in the scenic quality of the Forest. Of the 90,100 acres having VQOs of Retention or Partial Retention, approximately 80,000 currently meet the inventoried objective. If current management is continued, this number is expected to drop to approximately 24,400 acres by 2030, with much of the decline occurring in the early decades. The reason for this projected decline lies in the nature of current management direction. With the exception of areas in which attainment of VQOs is required, current direction specifies that VQOs be considered in the design of management activities, but not necessarily met.

Demand

Demand for acreage meeting VQOs is assumed to remain constant through time. There currently exists demand to meet the inventoried Visual Quality Objectives everywhere on the Forest. Therefore, acreage demanded cannot increase unless inventoried objectives change. However, the intensity of demand can increase and is expected to. It is assumed that intensity of demand will increase at the population growth rate. The demand figures in Table II-1 represent increases from the base year (1990) equal to expected increases in population. These figures are expressed as an index relative to the base year.

Table II-1. Relative Demand for Scenic Quality

| Year | 1990 | 2000 | 2010 | 2020 | 2030 |
|--------------|------|------|------|------|------|
| Demand Index | 100 | 109 | 116 | 126 | 134 |

Potential Supply

The maximum supply of scenic quality is limited only by the size of the Forest. Given multiple-use management goals, however, it is reasonable to consider supply in terms of inventoried VQOs. In this context, and including Retention and Partial Retention areas only, the existing supply of scenic quality is

KEY ISSUE-RELATED OUTPUTS

presently 80,000 acres—the area currently meeting Visual Quality Objectives. Through time, this figure will reach 90,100 acres (the potential supply) as the remaining areas reach vegetative conditions that meet VQOs. If the areas having the Preservation VQO are also included, the total potential supply of scenic quality (in areas where limitations on management practices are necessary to meet VQOs) becomes approximately 179,800 acres.

RECREATION

The Olympic National Forest plays an important role in providing developed and undeveloped recreational opportunities in the northwest corner of the State of Washington. Situated on the Olympic Peninsula, a scenic wonderland enriched with many recreational attractions, the Forest offers a wide variety of activities and settings. Opportunities for camping, picnicking, fishing, hunting, backpacking, auto touring, and hiking are among the more common and popular activities available. Unique activities such as clam digging, oyster picking, and scuba diving are also available.

The Forest also provides opportunities for recreating in a range of unique forest settings. The Olympic Rain Forest, saltwater beach and tidelands, rugged, mountainous high country, and large lowland lakes are major attractions. The Forest also provides a wide range of environments offering different experiences. These include Primitive settings, which involve high probability of isolation from the sights and sounds of man and a high degree of risk and challenge. At the other end of the range are Roaded and Rural settings, where opportunity for affiliation with other user groups is high, and risks and challenges are much less likely to occur.

Recreational opportunities on the Forest also include facilities and areas that have national and regional significance. Lake Quinault Lodge is a large, rustic resort with dining room, swimming pool, gift shop, and bar. Nestled in the Olympic Rain Forest on the south shore of Quinault Lake, this lodge provides year-long use. The Quinault Lake area also has several developed Forest Service campgrounds, picnic areas, and 68 recreational residences. Visitors to this popular area have a unique opportunity to drive or walk through one of the world's few temperate rain forests. Dense ferns, emerald moss and lichens, and giant old-growth conifers are common features within the Olympic Rain Forest

In 1984, the Washington State Wilderness Act established five Wildernesses on the Olympic National Forest Ranging in size from about 2,340 acres to over 44,000 acres, these new Wildernesses provide a variety of rugged, mountainous settings, attracting visitors from throughout the Pacific Northwest. These Wildernesses provide the most rugged and primitive experiences available on the Forest.

The eastern half of the Forest is within two hours driving time for most of the 2.5 million residents of the lower Puget Sound area (Kitsap, King, Mason, Pierce, Snohomish, and Thurston Counties). In 1986, total recreation use on the Olympic National Forest was ranked 9th among the 19 National Forests in the Pacific Northwest Region (Washington and Oregon). Recreation Visitor Days of use for 1986 was 1,469,600. A Recreation Visitor Day (RVD) is a measure of recreation use that represents 12 hours of participation in recreational activities on the Forest. It could be one person for 12 hours or 12 people for one hour each. Auto touring, camping, resort lodging, hunting, picnicking, hiking, recreational residence use, and gathering forest products are the most popular activities on the Forest. Undeveloped recreation accounts for roughly 70 percent of the Forest's annual RVD5 of use, while recreational use at developed sites accounts for the remaining 30 percent.

There are other public land management agencies involved in providing significant recreational opportunities on the Olympic Peninsula. The Olympic National Park is a major provider with 916,136 acres. Over 876,500 acres or 96 percent of the Park is classified as Wilderness. The Park's Wilderness

KEY ISSUE-RELATED OUTPUTS

plays a major role in providing opportunities at the Primitive end of the Recreation Opportunity Spectrum. The other 4 percent of the Park provides Roded recreation opportunities. The Park recorded over 3,474,700 visits in 1986. The Department of Natural Resources and Washington State Parks also play an important role in providing recreation opportunities and facilities, especially at the Roded end of the Spectrum. There are also a few private landowners with developed recreation facilities that are providing additional Roded recreation opportunities.

Current Management

The recreation opportunities offered on the Forest can be divided into three distinct groupings: developed, undeveloped roded, and dispersed unroded. The third group consists of the Primitive, Semi-Primitive Non-Motorized, and Semi-Primitive Motorized Recreation Opportunity Spectrum (ROS) classes, and can be further subdivided into Wilderness and non-Wilderness use. Continuation of current management direction will have a different effect on each of these categories of recreation opportunity.

With respect to developed recreation opportunity, the goal of current direction is to continue to meet demand. Sites having potential for development have been identified, and development of these will occur as dictated by increases in demand. Assuming that adequate funding is available, the attainment of this objective should be entirely feasible well into the 21st century.

Undeveloped roded recreation opportunities should also be adequately provided if current management is continued. In fact, expansion of the road system as new timber harvest areas are accessed will increase availability of this type of recreation opportunity. However, while overall opportunity will increase, it is anticipated that the quality of undeveloped roded recreation experiences will decrease. Declines in scenic quality and the overall 'naturalness' of the forest environment will be the principal causes of this quality reduction.

Recreation opportunities within Wilderness will remain constant under current direction. Use figures indicate that the theoretical capacity of the Forest's Wildernesses to provide high quality Wilderness experiences is currently being exceeded. Projections of future use indicate that this will continue to be the case, even if it is assumed that currently proposed trail development (which will expand capacity to some extent) occurs as planned. Given that the present acreage of Wilderness is fixed, there is little opportunity (beyond trail construction) to expand the capacity to provide high quality experiences.

The situation within the Primitive and Semi-Primitive ROS classes outside Wilderness is similar to that within Wilderness. Existing use exceeds the theoretical capacity of these areas to provide high quality experiences, and this condition will continue even if planned trail system expansion occurs. The key difference between these areas and Wildernesses is that continuation of current management will result in a substantial decrease in the acreage (outside Wilderness) providing dispersed unroded recreation opportunity. At present, there are 60,590 acres in the Primitive and Semi-Primitive ROS classes outside Wilderness. Continued implementation of current direction would reduce this to approximately 35,800 acres, with much of the reduction occurring in the next 10 years.

Demand

Projected demands for developed, undeveloped, and Wilderness recreation opportunities are presented in Table II-2. These projections were derived from population growth estimates and predicted changes in use patterns used in the development of the Washington Statewide Comprehensive Outdoor Recreation Plan (SCORP). Base year data represent actual use in 1986.

KEY ISSUE-RELATED OUTPUTS

These estimates are based on expected desire for use of the forest environment as it exists today and is projected to exist in the future under current levels of forest management activity. It is likely that the actual use patterns of the future will depend to some extent on the overall recreational quality of the total forest environment, especially for those forms of recreation for which the future supply is essentially fixed (developed, roaded undeveloped, Wilderness). If future levels of timber harvest activity, timber haul traffic, etc. are high, it is projected that participation in these forms of recreation will be somewhat lower than would occur within a more “natural” recreation environment. Therefore, the true “demand” for recreation (as expressed in terms of actual use) will probably depend on the effect of the overall Forest environment on the quality of the recreation experience in addition to factors external to the Forest (population growth and use pattern changes).

Table II-2. Acres, RVD capacity and Demand by ROS class

| | | | RVDs in thousands | | | |
|-------------------------------|-------------|--------------|-------------------|----------|----------|----------|
| Type and ROS class | Total Acres | RVD capacity | 1986 RVD | 1990 RVD | 2000 RVD | 2030 RVD |
| Developed (All Activities) | | 421.7 | 367.2 | 379.3 | 426.6 | 561.5 |
| Developed (Camping Only) | | 1646 | 1643 | 1898 | 2145 | 2810 |
| Undeveloped Non-Wilderness | | | | | | |
| Primitive | 4,901 | 6 | 16 | 17 | 1.9 | 26 |
| Semi-Primitive, Non-Motorized | 49,090 | 384 | 391 | 403 | 455 | 610 |
| Semi-Primitive, Motorized | 6,599 | 29 | 62 | 64 | 72 | 97 |
| Roaded Natural & Modified | 478,370 | 1,9127 | 9619 | 9908 | 1,1196 | 1,5003 |
| Rural | 5,099 | 202 | 47 | 48 | 54 | 72 |
| Wilderness | | | | | | |
| Primitive | 36,020 | 172 | 293 | 300 | 330 | 432 |
| Semi-Primitive | 52,245 | 484 | 596 | 611 | 872 | 880 |
| FOREST TOTAL | 632,324 | 2,4720 | 14696 | 1,5144 | 1,7084 | 2,2735 |

Note 1986 RVDs based on RIM Report 2300 1990-2030. RVD projections based on SCORP and State of Washington's Forecasting and Support Division of the Office of Financial Management

Table II-3 shows “persons at one time” (PAOT) capacity needed to meet demand for developed camping and Table II-4 shows miles of trail needed to meet demand for trails

Table II-3. Projected Demand for Developed Site capacity

| | | PAOT Demand per Decade (thousands) | | | | |
|-----------------|-------------------|------------------------------------|----|----|----|----|
| | Existing Capacity | 1 | 2 | 3 | 4 | 5 |
| Capacity (PAOT) | 23 | 46 | 50 | 55 | 61 | 67 |

KEY ISSUE-RELATED OUTPUTS

Table II-4. Projected Demand for Trails

| | | Demand for Trail Miles by Decade | | | | |
|----------------|----------------|----------------------------------|-----|-----|-----|-----|
| | Existing Miles | 1 | 2 | 3 | 4 | 5 |
| Miles of Trail | 227 | 279 | 310 | 344 | 382 | 424 |

Potential Supply

The maximum potential outputs of the various types of recreation opportunity are displayed in Table II-5. The developed recreation estimate is based on full development of all identified potential sites and a 30 percent occupancy rate. The potential supply of undeveloped roaded opportunity reflects the current capacity of the Forest to provide this experience. Since this is well above expected demand and not likely to fluctuate greatly over time, further refinement of this estimate was not necessary.

The potential availability of Primitive and Semi-Primitive recreation opportunity, both within and outside Wilderness, was developed in two different ways. The lower of the supply estimates shown in Table II-5 is the theoretical capacity to provide high quality experiences in areas presently within these ROS classes. Also displayed are levels of current use (as of 1986) expanded at the same rate as the demand projections displayed in Table II-2. These figures are used as “potential supply” projections. They reflect the levels of use that can be assumed to actually occur (based on demand) if all existing Primitive and Semi-Primitive opportunities are retained. Completion of planned trail systems is assumed in both estimates.

To demonstrate the relationship between current management and anticipated demand, the projected supply of Primitive/Semi-Primitive recreation opportunity (outside Wilderness) associated with current direction is also displayed in Table II-5. This is also based on expansion of current use in response to demand, but only within those areas retained within the relevant ROS classes.

Table II-5. Recreation Supply Potential
(Thousand RVDs/Year)

| | | | Primitive and Semi-Primitive | | | | |
|------|-----------|--------------------|------------------------------|--------------|-------------------|----------------------|--------------|
| | | | Outside Wilderness | | | Within Wilderness | |
| Year | Developed | Undeveloped Roaded | Theoretical Capacity | Demand Based | Current Direction | Theoretical Capacity | Demand Based |
| 1990 | 655.2 | 1,932.9 | 51.5 | 48.4 | 28.5 | 87.1 | 91.1 |
| 2000 | 655.2 | 1,932.9 | 51.5 | 54.6 | 32.1 | 87.1 | 100.2 |
| 2010 | 655.2 | 1,932.9 | 51.5 | 60.2 | 35.4 | 87.1 | 109.6 |
| 2020 | 655.2 | 1,932.9 | 51.5 | 66.4 | 39.1 | 87.1 | 119.9 |
| 2030 | 655.2 | 1,932.9 | 51.5 | 73.3 | 43.1 | 87.1 | 131.2 |

OLD-GROWTH FOREST

Old-growth is critical to the survival of some wildlife species, such as the northern spotted owl, and highly desirable for others, such as the pine marten and pileated woodpecker. It is also desirable for its role in providing natural settings for recreation experiences, scenic backdrops, and sources of large organic debris (an important part of instream fish habitat). Retention of existing old-growth will provide habitat for wildlife dependent upon mature or older forest habitat. Fish habitat, watershed condition, and recreational environment will generally be maintained by retention of existing old-growth. At the same time, retention of old-growth reduces the availability of timber for harvest. Although old-growth conditions can be recreated after an area is harvested, the length of time needed to achieve the necessary characteristics can exceed 200 years.

Additional considerations relating to old-growth include its usefulness in the manufacture of a variety of special products and its significance to American Indians on the Olympic Peninsula. Old-growth trees provide the basic raw material for cedar shakes and shingles, clear veneer, and planking for wooden boats. When old-growth is harvested for uses other than these special products, the available supply decreases at an accelerated rate. Western red cedar, especially old-growth, has a profound meaning and place in American Indian religious, ceremonial, and traditional values. A special reverence is held for the traditional uses of cedar resources. Please refer to Chapter III and Appendix K of the FEIS regarding this issue

At present, there are about 266,800 acres of old-growth on the Forest. This represents about 42 percent of the total Forest area, and 46 percent of the forested land. About 46,800 total old-growth acres are in Wildernesses. Approximately 170,000 acres of this old-growth total are considered to be tentatively suitable for timber production. Inventories planned for the first three years of the decade will update information concerning location and stand characteristics of potential old-growth. In areas of previous intensive harvesting, old-growth stands are small and fragmented.

Current Management

Under current management, old-growth will be retained as needed to meet the Management Requirements established for northern spotted owl habitat, bald eagle nesting sites and wintering areas, and riparian area vegetative conditions. In addition, several old-growth stands will be retained in areas allocated to the production of nontimber outputs, such as undeveloped recreation areas. Nonetheless, much of the old-growth which is tentatively suitable for timber production will be scheduled for timber harvest under current management direction. This would result in a reduction of the total acreage of old-growth from the present 266,800 acres to about 173,000 acres by the end of the fifth decade.

Demand

Demand for the retention of old-growth is difficult to assess precisely. The numerous values associated with old-growth forest, however, make it clear that every acre of existing old-growth serves a valuable purpose in the eyes of at least some segments of the public. Therefore, it is assumed that the "demand" for old-growth retention equates to the currently available supply of 266,800 acres, and that every acre of old-growth that is retained will contribute to the satisfaction of an existing demand. What is more, recent national attention on the old-growth issue and dependent wildlife species such as the spotted owl has resulted in an increased interest in retaining this resource.

Potential Supply

In the long run, the potential supply of old-growth consists of all currently existing old-growth plus all areas capable of eventually reaching an old-growth condition. At present, however, it is most useful to consider the potential supply of old-growth to be that which is currently available, or 266,800 acres

TIMBER HARVEST LEVEL

Of the nearly 584,000 acres of Olympic National Forest land that support tree growth, about 447,000 acres (77 percent) are presently classified as tentatively suitable for timber production. See Table IV-3 in Chapter IV of this Plan for the stratification of Forest land suitability. The productivity of these lands ranges from 20 to over 200 cubic feet per acre per year, with an average productivity of 120 cubic feet. Existing timber management plans include 507,930 acres of tentatively suitable land. Timbered lands considered unsuitable (23 percent) include Wilderness and the Quinault Research Natural Area, areas not capable of being regenerated within five years, and areas where unacceptable damage to soil and/or water would occur if harvest was conducted.

The current potential yield of timber from the Olympic National Forest, as specified in existing timber management plans, is 59.8 million cubic feet per year (330.5 million board feet), with an estimated stumpage value of \$43.6 million. If harvest from Simpson Timber Company land within the Shelton CSYU is added, the total output becomes 441.6 million board feet annually, or enough lumber to construct 36,800 average sized three-bedroom homes. This figure represents the volume that meets current utilization specifications. If material that does not meet current specifications (dead trees, cull material, and fuelwood material) is included, the total fiber output level reaches approximately 492 million board feet in an average year.

Timber output from the Forest is influenced by a wide range of existing plans and legal entities. Annual harvest volumes are established by three separate timber management plans. Four land-use plans dictate harvest locations through allocation of lands to resource uses. Two established sustained yield units limit the location of mills that can process the trees removed from 46 percent of the lands suitable for timber production. The relationships among these interacting timber management plans, and the harvest volumes associated therewith, are displayed in Table II-6.

KEY ISSUE-RELATED OUTPUTS

Table II-6. Current Chargeable Annual Allowable Sale Quantity

| Management Plans | | | | |
|--|---|--|-------------------------|---|
| Timber | Land | Ranger District | Annual Volume | Area Covered and General Comments |
| Quinault 1969 | Quinault 1976 | Quinault | 86.9 MMBF 14.5 MMCF | Grays Harbor Federal Sustained Yield Unit Control is sold volume |
| Shelton 1977 | Incorporated within the Timber Resource Plan | Hood Canal | 115.7 MMBF 21.6 MMCF | Shelton Cooperative Sustained Yield Unit jointly managed by the Forest Service and Simpson Timber Company. The unit was established by an agreement that terminates in 2046. Control is harvested volume. |
| | | Simpson Timber Co | 113.3 MMBF 21.7 MMCF | |
| | | Total Unit | 227.0 MMBF 43.3 MMCF | |
| Peninsula 1968 | Soleduck 1975 Canal Front 1979 Satsop Block 1979 | Soleduck Hood Canal Quilcene Hood Canal | 127.9 MMBF 23.7 MMCF | Includes all remaining National Forest land. The Satsop Block originally was not part of any Timber Plan, but subsequently has been added to the Peninsula Plan. Control is sold volume. |
| Total volume meeting utilization specifications all NF lands | | | 330.5 MMBF 59.8 MMCF | |
| Total volume meeting NF and Simpson Timber Co utilization spec- ifications | | | 441.8 MMBF 81.5 MMCF | |

Current Management

Implementation of current management direction, including the means of meeting Management Requirements and the revised assessment of timberland suitability, will result in a drop of 83.6 million board feet from currently planned harvest levels. The harvest volume associated with extension of current direction into the future is 358.2 million board feet per year. This output is based on continuation of the nondeclining flow harvest policy and includes harvest from Simpson Timber Company land within the Shelton CSYU.

Under current direction, timber output is one of the primary emphases of land management. Land allocations reflect this emphasis, as most areas in which timber management can be conducted effectively are allocated to timber production. The level of timber output associated with current direction will, if all volume offered is sold and harvested, provide approximately 4,800 person-years of employment annually on the Olympic Peninsula. This is close to 10 percent of the total Peninsula labor force.

Demand

Future demand for Forest timber is expected to be shaped by the interactions of two factors: reduced availability of timber on non-Forest lands and continued strong demand for western Washington wood products. As is the case for Pacific Northwest region demand as a whole, demand for western Washington timber (and thus Forest timber) is presently high relative to historic levels. The influx of inexpensive timber from western Canada and the expansion of the market area of timber from the South precipitated a major slump in western Washington's timber industry in the early 1980's. Over the past five years, however, there has been a strong resurgence of demand for western Washington timber, and recent harvest has been considerably above historic levels. It is expected that the current high level of demand will moderate in the 1990's and beyond, although continuing peaks and valleys will occur in response to market cycles. It is further expected that the long-term average demand for Peninsula timber will lie between the average harvest level experienced in the 1980-1988 period and the average harvest of the 1970's.

If demand for Peninsula timber approximates the projected level, supply availability will soon become the critical factor limiting the vigor of the local timber industry. Current projections indicate a substantial drop in timber availability, beginning in the 1990's and extending throughout the next 50 years. Lack of raw material availability may make it impossible for Peninsula mills to take advantage of anticipated levels of demand.

The overall timber supply situation on the Peninsula should soon become the dominant factor in determining demand for National Forest timber. With timber availability from non-National Forest sources declining, this demand is expected to be quite strong. While attempting to quantify the future demand for Forest timber is a highly uncertain undertaking, such an estimate is useful in relating National Forest harvest levels to the overall Peninsula timber supply/demand situation. Therefore, projections have been made of the possible range in which demand for National Forest timber could lie in future decades. These projections are presented in Table II-7. They are based on the following assumptions:

1. The average annual Peninsula-wide harvest level of the 1980-88 period represents the lower limit of future demand for Peninsula wood products, while the 1970-79 level represents the upper limit. Under this assumption, future demand for Peninsula wood products will lie between 1,695 and 1,785 million board feet per year, a range of 90 million board feet. In this context, demand is defined as the volume of Peninsula harvest that would be consumed in final product form (lumber, pulp and paper products, plywood, logs for export) in the wood products market, given that Peninsula forests are able to supply the amount demanded.
2. Demand for National Forest timber can be projected by subtracting estimated non-National Forest harvest from estimated demand for final products. In this context, "demand" (for National Forest timber) is defined as the volume of Forest timber that would be purchased (if available) by Peninsula mills in response to the combination of demand for final products and supply of timber from other Sources. This assumes that the demand for exportable logs is fully filled from non-National Forest sources, with National Forest timber helping to fill the needs of local mills.

For further discussion on the development of supply and demand estimates, refer to FEIS Chapter III, "Vegetation" ("Future Trends" Section).

KEY ISSUE-RELATED OUTPUTS

Table II-7. Projected Demand for National Forest timber
(Million Board Feet per Year)

| Period | Estimated Total Demand | Non-National Forest Harvest | Demand for National Forest timber 1/ |
|--------------|------------------------|-----------------------------|--------------------------------------|
| 1980-1988 2/ | 1,695 | 1,315 | 380 |
| 1990-1999 | 1,695-1,785 | 1,140-1,220 | 475-645 |
| 2000-2009 | 1,695-1,785 | 1,145 | 550-640 |
| 2010-2019 | 1,695-1,785 | 1,070-1,150 | 545-715 |
| 2020-2029 | 1,695-1,785 | 1,165 | 530-620 |
| 2030-2039 | 1,695-1,785 | 1,155 | 540-630 |

1/ Including harvest from Simpson timber company and within the Shelton CSYU

2/ Average annual experienced harvest levels

Potential Supply

The above projections of demand for National Forest timber represent estimates of the volume that would be purchased if it were available. In actuality, it is not possible for National Forest timber to be supplied at the levels necessary to satisfy projected demand over the next 50 years. The Forest's timber output capacity, under nondeclining flow and assuming full application of Management Requirements, is 380.2 million board feet per year (including harvest from Simpson Timber Company land within the Shelton CSYU), as determined by Benchmark 7T. If departure from nondeclining flow is considered, supply potential becomes 463.8 million board feet per year in the first decade. This output level, which cannot be sustained past the second decade, is derived from Alternative B-Departure (Modified)

SEDIMENT

While sediment is not a desired product of forest management, and therefore not an "output" in the usual sense, it is included in this discussion because of its effect on two important (and closely related) concerns: water quality and fish habitat. Both of these variables can be adversely affected by sediment, with degree of effect depending on extent of sedimentation. This, in turn, depends largely on the level of sediment-generating activity (particularly the construction, reconstruction, and use of Forest roads) associated with management of the Forest. Approximately 192,000 tons of sediment (current situation, 1988) are generated annually by management activities. This is in addition to the natural rate of sedimentation of about 112,500 tons per year. It should be noted that these sediment output estimates are highly imprecise and are not suitable for determining compliance with Federal and State water quality standards. They are being used as an index to facilitate comparison of alternative activity levels rather than a concrete projection of sediment generation. See FEIS Chapter IV, "Water" section, for further clarification.

Current Management

Continuation of current management direction is expected to result in a decrease in sediment output, with the sediment index lowering to 161,600 tons per year in the first decade. This is due largely to lower levels of timber harvest activity. After the first decade, the sediment index is expected to drop to approximately 145,500 tons per year, due to both reduced road construction and a decrease in road use (timber haul) because of reduced timber harvest from National Forest land within the Shelton CSYU. Average sediment output over the first five decades is estimated at 145,200 tons per year.

FISH HABITAT

The salmon and trout species produced and/or reared within aquatic habitats of the Forest contribute to the sport and commercial fisheries resources of the Olympic Peninsula. This is especially true for sea-run or anadromous species that spawn within Forest freshwater habitats, then migrate to the ocean to grow to adults. The majority of these species are captured in the ocean, or in rivers downstream from the Forest during their return spawning migrations.

The actual portion of Olympic Peninsula anadromous fish produced on-Forest is unknown. However, using river miles of habitat accessible to anadromous fish as a guide, National Forest management can directly influence 43 percent of the total habitat within those drainages that flow through the Forest. Fifteen percent of the total habitat in these drainages is within the National Forest boundary. Twenty-eight percent is downstream from the boundary and can be influenced by Forest activities. The remaining 57 percent is upstream, or tributary to downstream reaches, and is not directly influenced. Thus, the fisheries resources influenced by the Forest are significant. Many coastal communities and American Indian tribes on the Peninsula rely on recreational and commercial fisheries revenues.

In addition to managing on-Forest fisheries habitat, the Forest Service is responsible for maintaining water quality and fish passage within all river systems that drain the Forest. The importance of this is that roughly 28 percent of the river miles accessible to anadromous fish that can be influenced by Forest Service activities occur downstream, on State and private lands. Maintaining fish passage is also important because about 20 percent of the river miles accessible to anadromous fish are located upstream from the Forest, in Olympic National Park

There are approximately 350 river miles, or 1,507 surface acres, of habitat on the Forest currently accessible to anadromous fish. In addition, there are approximately 424 river miles, or 773 surface acres, of isolated stream habitat that presently support resident fish populations. In addition to the stream habitat, there are 44 lakes or reservoirs that provide an additional 3,416 surface acres of suitable habitat. The total fish habitat is approximately 5,696 surface acres.

Current habitat management direction is to maintain or enhance fisheries habitat by preventing or mitigating adverse effects on fisheries resulting from Forest resource management activities. Habitat enhancement projects are implemented as funding becomes available

Actual fish production information for suitable habitats located on-Forest is not available. Current production or habitat capability estimates were made based on data provided by the Washington State Departments of Wildlife and Fisheries. This information was utilized to generate Habitat Capability Indices for each of the major drainages on the Forest. The capability indices for anadromous fish production assume that enough adult fish return to the various river systems to adequately seed available habitat under existing environmental conditions. Resident fish capability estimates for streams were developed in a similar manner. Stream Habitat Quality Indices were also developed to estimate current habitat conditions. These estimates were primarily derived from predicted effects of current nonnatural sediment outputs. The existing habitat quality and capability estimates were used to estimate current levels of production of fishery-related outputs. At present, it is estimated that Forest fisheries are producing 1,122,700 pounds of anadromous commercial catch and 26600 Wildlife and Fish User Days (WFUDs) of recreation use per year.

KEY ISSUE-RELATED OUTPUTS

Current Management

There are several aspects of current management direction geared toward the maintenance and protection of fish habitat. Among these are the Management Requirements applicable to riparian areas, road closures aimed at reducing sediment output, road construction and maintenance standards designed to lower road-related siltation, and a range of site-specific habitat enhancement projects. The overall goal of management is to maintain fish habitat quality at a level equal to, or greater than, that which presently exists

Analysis of the effects of continuing current management indicates that, overtime, fish habitat condition can be expected to improve slightly. The basic assumption behind this determination is that sediment level is the principal factor influencing habitat quality. Overall levels of activity-generated sediment are expected to decline in future decades, due to both reduced road construction and reduced harvest activity on National Forest land. This decline in sediment output should result in an increase in fish habitat quality. The projected levels of fishery-related outputs associated with continuation of current direction are displayed in Table II-8. The outputs shown do not include the effects of fish habitat enhancement projects.

Table II-8. Projected Fisheries Outputs

| Decade | Anadromous Commercial Catch (Thousand lbs/year) | Anadromous Recreation (Thousand WFUDs/year) | Inland Recreation (Thousand WFUDs/ear) |
|--------|---|---|--|
| 1 | 1,133 | 16.4 | 11.7 |
| 2 | 1,160 | 17.0 | 11.1 |
| 5 | 1,166 | 17.2 | 11.7 |

Demand

There are three principal sources of demand for fisheries outputs: commercial fishing, ocean sport fishing, and freshwater sport fishing. In the case of all three, available supply falls far short of demand, and will do so at any reasonably achievable output level. The assumption is that people who engage in fishing do so with the expectation of success, and the higher the success rate, the greater the satisfaction level (and profit level, in the case of commercial fishing). Therefore, any increase in fish population will increase satisfaction, and will be demanded.

In order to provide a meaningful basis against which various output levels can be assessed, demand indices were developed on the basis of anticipated growth in population. The intent of these indices is to reflect the growth in outputs needed to maintain overall user satisfaction at present levels through time. The assumption is that outputs must increase at the same rate as population if the current level of satisfaction is to be maintained. Demand indices, and the future fishery output demand levels they imply, are displayed in Table II-9.

KEY ISSUE-RELATED OUTPUTS

Table II-9. Relative Demand for Fishery Outputs

| Decade | Demand index | Anadromous Commercial Catch (Thousand WFUDs/year) | Anadromous Recreation (Thousand WFUDs/year) | Inland Recreation (Thousand WFUDs/year) |
|--------|--------------|--|--|--|
| 1 | 100 | 1,554 | 24.1 | 16.1 |
| 2 | 109 | 1,694 | 26.3 | 17.5 |
| 5 | 134 | 2,082 | 32.3 | 21.6 |

Potential Supply

The potential output level of Forest fish habitat was developed on the basis of complete elimination of nonnatural sediment from existing habitat. While such a condition would not be feasible in the near future, it could, in theory at least, be attained over time if all sediment-generating activity were to be eliminated and all existing roads revegetated. If such a state were to be reached, the associated outputs are estimated to be 1,400,000 pounds of anadromous commercial catch and 36,000 WFUDs of recreation per year.

WILDLIFE HABITAT

Wildlife habitat on the Olympic National Forest is made complex by the Olympic Peninsula's relationship with the sea. The nearness of saltwater, weather patterns, the extensive river network, and flat, stable flood plains giving way to sharp unstable interior mountains create a wide range of habitat and animal diversity. Prevailing winds and the Peninsula's isolation from the Cascades and the southern coastal range have generally prevented interbreeding of many nonmigratory wildlife species. The Olympic marmot, Roosevelt elk, and Cope's salamander are wildlife subspecies that have been influenced by geographic isolation.

The wildlife resource on the Forest is also heavily influenced by the presence of Olympic National Park. The 916,000 acres of the Park provide additional habitat for species that spend a portion of each year on the Forest. This habitat allows genetic interchange and provides big game summer and winter range, northern spotted owl habitat, and habitat for both game and nongame birds and animals.

The Forest provides habitat for 61 species of mammals, 226 species of birds, 7 reptile species and 15 amphibian species. A full list of the species, and their related habitat needs, is available in files on the Forest. Although most wildlife species use several or all vegetative age classes, many are oriented to either early or late successional stages. Availability of habitat in either the early or late stages of forest growth, therefore, strongly influences both abundance and diversity of associated wildlife species.

This response to changes in structural habitat components in the environment (ecotype, stand condition, and special habitat features) provides a framework from which to estimate the effects of management activities on wildlife species. Based on their responses to changes in habitat conditions, certain birds and mammals have been identified as indicator species. Each indicator species represents an association of other animals that associate with the same set of structural components. It is assumed that management which maintains or enhances the habitat of indicator species will likewise maintain or enhance that of its "association." Seven species, or groups of species, have been selected as indicator species. These are:

Bald Eagles. The bald eagle is a Federally listed threatened species sensitive to management of riparian areas. Mature timber is needed for nesting and roosting. At present, 16 nest sites are protected. This is the Forest's share of sites determined necessary by the U S Fish and Wildlife Service's draft recovery plan (1984) for bald eagle habitat. Sufficient unoccupied habitat exists to support significantly greater

KEY ISSUE-RELATED OUTPUTS

numbers. With decreased harassment and continued food availability, populations can be expected to increase.

Northern Spotted Owl. The spotted owl inhabits old-growth forests and serves as an indicator for other wildlife species using this habitat. Continuing inventories indicate that many potential areas are currently occupied. Thirty Spotted Owl Habitat Areas (SOHAs) averaging 3,000 acres each have been identified by the Forest as the means of meeting Management Requirements regarding spotted owl population viability. As of 1989, 23 of these have verified breeding territories as defined by Regional standards.

Pileated Woodpecker and Pine Marten. The pileated woodpecker and marten represent species that inhabit mature conifer habitat. While each requires mature conifer, home range and distribution requirements are different. Habitat exists to support high numbers of both pileated woodpeckers and martens. However, the marten's solitary and secretive behavior patterns, combined with lack of observations on the Forest, lead to the conclusion that very little of this habitat may actually be occupied by marten.

Primary Cavity Excavators. This group of species represents snag-dependent cavity nesters. This large group represents the woodpecker group of birds dependent on snags of varying sizes for feeding, resting, and nesting. Current snag density is at a level capable of supporting high numbers of these species. However, snag density in younger stands is often suboptimal.

Columbian Black-Tailed Deer and Roosevelt Elk. These two species are identified as management indicator species in the 1980 RPA Program. The Columbian black-tailed deer is the most abundant game species on the Olympic National Forest. The most recent estimate of herd size which can be supported by Forest habitat is 6,500 animals, with over one-third of these on the southern portion of the Hood Canal Ranger District. Peninsula-wide, deer populations appear to be increasing. The deer and elk harvest is expected to provide an average of 27,260 Wildlife and Fish User Days (WFUDs) of recreation for the next 10 years. Forest populations appear to be increasing as a result of increased forage availability following timber harvest activities. The Roosevelt elk is a popular game species, and is also the focus of public concern. The most recent estimate of the number that Forest habitat can support is 3,200 elk, with over 80 percent occurring on the Westside zone. There appears to have been a Peninsula-wide population decline over the last decade. The reason for this decline in population numbers may be timber harvest activities on State, private, American Indian, and Federal lands, which reduces thermal and hiding cover. An increase in hunting pressure may also have contributed to the population decline.

Current Management

Goals for the management of wildlife habitat focus on two separate concerns, maintenance of sufficient habitat to assure viable populations of indicator species, and satisfaction of demand for consumptive uses of wildlife (primarily hunting). The former concern is addressed by establishment of ways or means of meeting Management Requirement specifications for habitat maintenance. Under current management, these are as follows.

- 30 spotted owl habitat areas (SOHAs) averaging 3,000 acres each.
- 16 bald eagle nest sites and wintering areas (6 of which are partially included in owl, pileated woodpecker, or marten areas).
- 56 300-acre pileated woodpecker areas (most of which are included in SOHAs).
- 155 160-acre pine marten areas (most of which are included in SOHAs and pileated woodpecker areas).

Based on current information, these habitat allocations will be sufficient to assure maintenance of viable populations of indicator species.

KEY ISSUE-RELATED OUTPUTS

Response to the second concern is measured in terms of the Wildlife and Fish User Days (WFUDs) of recreation projected to be available as a result of vegetative conditions and the wildlife populations they will support. Such estimates are linked directly to elk and deer populations, as these are the principal species receiving hunter use on the Olympic National Forest. At present, approximately 49,950 wildlife-related WFUDs are produced each year by Forest habitat. Continuation of current management is expected to result in little change in this output over the next 20 years—50,911 WFUDs per year are anticipated in the first decade, 47,735 in the second. By the fifth decade, however, the conversion of substantial acreages to younger age classes as timber harvest progresses may result in some decline in elk and deer populations. An output of 41,214 WFUDs per year is projected for this period

Demand

Available information indicates that the demands of hunters and other wildlife “consumers” will always exceed the capacity to supply animals. If it is assumed that people actively engaged in hunting do so with the expectation of being successful, demand will never be met. Demand for nongame species is assumed to be met if viable populations are maintained.

As was done for fishery-related outputs, wildlife demand indices were developed on the basis of anticipated growth in population. These represent the level of output needed to maintain overall user satisfaction at today’s level. The indices reflect the assumption that outputs must increase at the same rate as population in order to continue providing the same degree of user satisfaction. These demand indices, and the future wildlife output demand levels they imply, are displayed in Table II-10.

Table II-10. Relative Demand for Wildlife Outputs

| Year | Demand index | Projected Demand (Thousand WFUDs/year) |
|------|--------------|---|
| 1990 | 100 | 58.3 |
| 2000 | 109 | 63.5 |
| 2030 | 134 | 78.1 |

Potential Supply

The potential supply of wildlife-related recreation output was estimated on the basis of an assumed timber harvest regime that would optimize deer and elk habitat conditions. Such a program would limit timber harvest below 1,500 feet in elevation, while requiring a harvest program that would be evenly distributed in both space and time above 1,500 feet. This hypothetical program would produce an estimated 56,300 WFUDs of wildlife-related recreation per year.

UNROADED AREAS

Unroaded areas serve an important role as the undeveloped portions of the National Forest for which Wilderness is a future option. Generally speaking, once an area is roaded it is no longer considered potential Wilderness. Timber harvesting, however, does not necessarily result in irreversible removal of

KEY ISSUE-RELATED OUTPUTS

land from future consideration as Wilderness. For example, there is presently an area within The Brothers Wilderness that, although harvested in the past, now appears natural to the casual observer.

Unroaded areas also provide opportunities for recreational activities associated with the Primitive end of the Recreation Opportunity Spectrum (ROS). Unroaded areas, like Wilderness, provide recreational opportunities associated with unmodified or predominantly natural-appearing environments. They provide opportunities for solitude, and for activities that will test a person's outdoor skills. Hiking, mountain climbing, undeveloped camping, hunting, fishing, trail bike and horseback riding, and gathering forest products are some of the more popular recreational activities associated with unroaded areas. Unroaded areas also serve as scenic backdrops (South Quinault Ridge, Green Mountain, and Mt. Baldy) to popular recreation areas and travel routes.

Wildlife also benefits from unroaded areas. Spotted owls and other old-growth or mature habitat dependent species, such as pileated woodpeckers and flying squirrels, inhabit these areas. Unroaded areas also provide undisturbed habitat for big game species such as elk and deer.

There are 13 unroaded areas inventoried on the Olympic National Forest. These range in size from 490 acres to over 19,000 acres, with the average size being approximately 6,600 acres. In total, the Forest has approximately 85,800 acres in unroaded areas. Refer to FEIS Chapter III, Table III-39, for the acreage of each unroaded area.

Current Management

Because of the timber production emphasis associated with current management, the continuation of current direction will result in a substantial reduction in the acreage in unroaded areas. Of the 85,800 acres currently having unroaded status, approximately 50,500 would remain if current land use allocations and management direction are continued. Most of this reduction will occur within the first ten to twenty years of the planning horizon, as road access is developed and areas are harvested. Only the McDonald unroaded area would remain 100 percent unroaded under current management. Many of the unroaded areas allocated to timber harvest in current plans involve timber management costs which exceed projected revenues.

Demand

Segments of the public have expressed interest in retaining all currently inventoried unroaded areas in their present condition. Therefore, it is assumed that demand exists for maintaining the full 85,800 acres of unroaded area in an undisturbed state.

Potential Supply

Although areas which have been harvested can, in time, return to a condition that can be classified as unroaded, it is most practical to consider the potential supply of unroaded areas to consist of those which currently exist. Therefore, potential supply is estimated at 85,800 acres.

WILD AND SCENIC RIVERS

The intent of including a river in the National Wild and Scenic River System is to preserve the free-flowing condition of the river itself, as well as the characteristics of the river's immediate environment, for the benefit and enjoyment of present and future generations. When the Wild and Scenic Rivers Act was passed in 1968, Congress meant to provide a means for recognizing selected rivers which, along with their immediate environments, possessed outstandingly remarkable scenic, recreation, geologic, fish and wildlife, historic, cultural or other similar values

The Olympic Peninsula does not presently have any designated Wild and Scenic Rivers. However, the Heritage Conservation and Recreation Service, now part of the National Park Service, has listed six rivers flowing through the Forest as having potential for classification as Wild, Scenic or Recreational rivers. These are the Dosewallips, Duckabush, main stem and West Fork of the Humptulips, Hoh, Bogachiel, and Soleduck Rivers. These were identified in a January 1982 document titled Nationwide Rivers inventory

Using that document as a starting point, the Forest has evaluated a total of seventeen rivers on the Peninsula. These include the six rivers mentioned in the preceding paragraph plus the Dungeness, Gray Wolf, Big Ouilcene, Hamma Hamma, Skokomish, South Fork Skokomish, Wynoochee, East Fork Humptulips, Quinault, Calawah and its three main branches, and Elwha Rivers. The purpose was to determine the eligibility, potential classification, and suitability of each of the rivers. Additional information about the process, and the character and resources within each river corridor examined, is available in Appendix F of the accompanying FEIS

The results of the study led to the determination that the Big Ouilcene, Skokomish, and Calawah (including its three main branches) Rivers were not eligible for designation as Wild and Scenic Rivers. In addition, the appropriate lead agency responsible for considering the final designation of the eligible rivers was recommended. The Forest Service is considered to be the logical lead agency for ten of the rivers Dungeness, Gray Wolf, Dosewallips, Duckabush, Hamma Hamma, the main stem and West Fork of the Humptulips, East Fork Humptulips, Soleduck, South Fork Skokomish, and Wynoochee

Current Management

It is the intent of this planning process to determine the recommended final classification of the ten Wild and Scenic River candidates for which the Forest Service is the logical lead agency. It is also intended that Forest Plan direction assure that the eligibility of the remaining candidates (the Quinault, Hoh, Bogachiel, and Elwha Rivers) will not be compromised by Forest management activities prior to completion of appropriate classification studies. The National Park Service is considered to be the logical lead agency for these four rivers.

Under existing land management plans, the Duckabush River is the only candidate river recommended for Wild and Scenic River designation. Continuation of current direction would extend this recommendation, while eliminating other candidates from further analysis. Current management direction does not include specific provisions for protecting the qualifying characteristics of the four candidate rivers for which the Forest Service is not the logical lead agency.

Demand

There is a segment of the public that strongly supports designation of all inventoried rivers as Wild and Scenic. With regard to the desires of the public as a whole, however, it is difficult to assess the

SUMMARY

“demand” for such designations. Public input on the subject has been mixed, with some favoring inclusion of the Forest’s inventoried rivers in the Wild and Scenic River System and some opposed. Although the intensity of demand is unclear, it may be concluded that there is some level of demand for Wild and Scenic Rivers, and that so classifying a river would, therefore, be responsive to an existing demand.

Potential Supply

The group of ten eligible rivers for which the Forest Service has been determined to be the logical lead agency represents the Forest’s maximum practical potential for expanding the Wild and Scenic River System.

SUMMARY

The assessments of demand and potential supply conducted during the Analysis of the Management Situation (AMS) served to identify the “decision space” within which the Forest could operate during development of alternative strategies for resolving public issues and management concerns. This decision space is bounded by the maximum potential output levels of each issue-related resource, and further delineated by the tradeoff relationships that result from resource interactions. While it would be feasible to obtain the maximum output level of each resource individually, producing all of the maxima simultaneously would be impossible. Increased production of one output generally entails reduced production of others.

The resource maximization benchmarks analyzed during the AMS provided estimates of maximum production potential. Analysis of current direction (Alternative A-Current Direction) provided projections of the outputs and effects associated with continued implementation of current management direction, and also established the relationship of present management emphases to the available decision space. Comparison of the output levels of any given benchmark with those of the others provides some insight into the tradeoffs involved in emphasizing the output of a particular resource. For a more thorough discussion of such tradeoffs, refer to the Benchmark Analysis’ section of FEIS Appendix B.

The figures shown in Table II-11 represent average annual outputs or effects. Actual outputs could vary from year to year during any specific decade, but should average to the figures shown over each full decade.

Table II-11. Summary of Demand and Supply Projections for Key Issue-Related Outputs

| Annual Resource Output or Environmental Effect | Unit of Measure | Projected Demand | Potential Supply | No Action Alternative | Forest Plan |
|--|----------------------|------------------|------------------|-----------------------|-------------|
| Areas Assigned to Prescriptions Meeting Preservation, Retention, and Partial Retention Visual Quality Objectives | Acres | 179,800 | 179,800 | 114,100 | 179,800 |
| Dispersed Unroaded Recreation Opportunity | 1,000 RVDs | | | | |
| Decade 1 | | 48.4 | 48.4 | 28.5 | 32.4 |
| Decade 2 | | 54.6 | 54.6 | 32.1 | 36.6 |
| Decade 5 | | 73.3 | 73.3 | 43.1 | 49.1 |
| Old-Growth Forest | Acres | | | | |
| Midpoint of | | | | | |
| Decade 1 | | 266,800 | 266,800 | 248,271 | 255,815 |
| Decade 2 | | 266,800 | 266,800 | 214,428 | 233,893 |
| Decade 5 | | 266,800 | 266,800 | 175,496 | 186,558 |
| Allowable Timber Sale Quantity (includes Simpson Timber Company output) | MMCF | | | | |
| Decade 1 | | 112.0 | 76.5 | 70.3 | 60.2 |
| Decade 2 | | 119.0 | 76.5 | 70.3 | 61.8 |
| Decade 5 | | 117.0 | 76.5 | 70.3 | 71.9 |
| Sediment | Tons/Year index | | | | |
| Decade 1 | | 0 | N/A | 151,600 | 114,600 |
| Decade 2 | | | | 145,500 | 131,000 |
| Decade 5 | | | | 127,000 | 118,400 |
| Anadromous Fish commercial Harvest (based on enhanced anadromous habitat potential) | 1,000 Pounds of Fish | | | | |
| Decade 1 | | 1,554 | 1,400 | 1,245 | 1,296 |
| Decade 2 | | 1,694 | 1,530 | 1,388 | 1,397 |
| Decade 5 | | 2,082 | 1,530 | 1,401 | 1,415 |
| Fish-Related Recreation | 1,000 WFUDs | | | | |
| Decade 1 | | 40.2 | 36.0 | 26.1 | 29.2 |
| Decade 2 | | 43.8 | 39.0 | 28.2 | 28.6 |
| Decade 5 | | 53.9 | 39.0 | 28.9 | 29.4 |
| Wildlife-Related Recreation | 1,000 WFUDs | | | | |
| Decade 1 | | 58.3 | 56.3 | 50.9 | 50.9 |
| Decade 2 | | 63.5 | 56.3 | 47.7 | 48.2 |
| Decade 5 | | 78.1 | 56.3 | 41.2 | 41.8 |
| Unroaded Areas Assigned to Unroaded Management Prescriptions | Acres | 85,800 | 85,800 | 50,500 | 57,500 |
| Wild and Scenic Rivers | Rivers | 14 | 14 | 1 | 3 |
| Present Net value | Million \$ | N/A | 592.1 | 568.5 | 520.3 |

INFORMATION NEEDS

INFORMATION NEEDS

This section lists the research and inventory needs identified throughout the development of this Forest Plan. The items listed are considered to be important in monitoring the implementation of this Plan, in developing a more complete data base for use in revising this Plan in ten to fifteen years, or both. Suggested time-frames for completion of each research or inventory item are included. More information is available in the monitoring worksheets included in Appendix B of this document.

RESEARCH AND INVENTORY NEEDS

Recreation

1. Research recreation use by activity, state/area, and ROB classes and develop a reliable method for determining Recreation Visitor Days for undeveloped recreation. Needed by end of fifth year.
2. Conduct a recreation marketing survey to determine the needs and demands of the recreating public on the Olympic Peninsula. Needed by end of fifth year.
3. Research visitor preferences for types and levels of facilities desired at developed recreation sites. Needed by end of fifth year.
4. Research off-road vehicle (ORV) use in specific areas to determine if and how ORVs affect other visitors and resources. Needed by end of fifth year.
5. Continue to inventory undeveloped camping sites both inside and outside of Wilderness. Wilderness inventory needed by end of first year and outside of Wilderness needed by end of fifth year.
6. Research and develop a computerized method for managing undeveloped recreation data. Needed by end of fifth year.
7. Research interpretive programs/facilities to determine if they are accomplishing their intended purposes and if not how they can be improved to do so. Needed by end of seventh year.
8. Research visitor information opportunities and develop self-service information stations that provide reliable and convenient information. Needed by end of eighth year.

Scenery

1. Inventory Forest travel routes and use areas to determine if current use warrants a change in the visitor sensitivity levels. Needed by end of fifth year.
2. Research how Forest visitors perceive the various Forest resource management activities and their visual impacts upon scenery. Needed by end of tenth year.

Wilderness

1. Conduct a field survey to determine if and how management activities and other visitors outside the Wilderness affect the visitor's experiences within the Wilderness as related to the Wilderness Resource Spectrum. Needed by end of tenth year.
2. Research Wilderness use to determine if and how encounters with other visitors within the Wilderness affects the opportunity for solitude and one's Wilderness experience. Needed by end of fifth year.
3. Research methods for rehabilitating areas of impacted resources within Wilderness. Needed by end of fifth year.
4. Investigate the rate at which native vegetation in the alpine community can recover from human impact. Needed by midpoint of first decade.
5. Research impacts of mountain goats on native plants and soil. Needed by end of fifth year.
6. Research air quality within Wilderness. Needed by end of tenth year.
7. Within Wildernesses, obtain data regarding campsite numbers within selected areas, campsite conditions, opportunities for solitude at campsites, and water quality condition of selected lakes and streams. Needed by end of third year.

Fire and Air

1. Investigate methods of refining burning techniques so as to reduce total suspended particulate (TSP) production, thereby facilitating attainment of air quality goals. Needed by the midpoint of the first decade.
2. Verify current method of predicting TSP output (or develop more reliable predictive model). Needed by midpoint of first decade.

Fisheries

1. Develop a model that predicts effects of large organic debris on fish habitat quality. Verify assumptions behind fish habitat capability estimation techniques. Needed prior to Plan revision.
2. Determine actual average annual fisheries outputs associated with each type of habitat improvement project. Needed by midpoint of first decade.
3. Inventory Forest fish habitat to determine quality and quantity. An initial assessment of Forest stream conditions is needed, in order to validate planning assumptions and identify habitat enhancement opportunities. Needed by end of third year.

INFORMATION NEEDS

Wildlife

1. Determine actual home range needs of wildlife indicator species, the northern spotted owl in particular, so that the adequacy of remaining old-growth areas and habitat allocations can be established. Needed by end of third year.
2. Inventory Forest wildlife habitat, including deer and elk winter range, to determine quality and quantity of habitat available. Needed by midpoint of first decade.
3. A value analysis of methods used to create and/or maintain dead and down woody material is needed, in order to establish the most effective means of maintaining habitat for primary cavity excavators. Needed by end of third year.

Soil

1. Establish relationships of soil compaction, slash burning, and removal of surface soil ("A" Horizon) to forest soil productivity and productivity recovery rates through time. Develop means of estimating changes in soil productivity that will result from management activities. Needed prior to Plan revision.
2. Develop and maintain an inventory of all mass wasting and soil erosion areas that are greater than .05 acres. This will aid in identifying potential soil stabilization projects. Needed by midpoint of first decade.

Timber

1. Validate managed timber yield simulators (or develop improved predictive capability). Needed by midpoint of first decade.
2. Determine the feasibility of managing timber under "ecological prescriptions" which will retain substantial volume on the site and attempt to retain or develop old-growth stand characteristics. Needed by mid-point of first decade.
3. A comprehensive inventory of current timber stand conditions (including old-growth), growth rates, and other vegetative condition parameters is needed in order to update stand data and validate planning assumptions. Needed by end of fourth year.

Water/Riparian

1. Verify the model used to make sediment yield predictions in the Forest planning process. A more reliable and less costly means of predicting the effects of forest management activities on sedimentation rates would be desirable. Needed prior to Plan revision.
2. Inventory current status of vegetation within riparian areas, initial inventory is needed to determine existing conditions and facilitate monitoring of changes in riparian condition. Needed by end of third year.
3. Quantify existing water quality variables in major watersheds. Parameters such as sediment and water temperature should be determined, both upstream from the National Forest boundary and

immediately downstream from the last point of potential effect due to National Forest activity. Needed prior to Plan revision.

Cultural Resources

1. Develop, schedule, and program a complete coverage survey plan that includes survey coverage for all areas not likely to be examined through surveys associated with resource management projects. Establish a comprehensive survey program that will, overtime, inventory and evaluate all cultural resources.
2. Track building maintenance, restoration, and rehabilitation costs for historic structures in order to develop better programming and budgeting cost data for these activities. Internal management guidelines have been developed for CCC administrative structures. Cost collection efforts should be made to establish the costs associated with these standards.
3. Investigate and collect information on maintenance, restoration, and rehabilitation of historic structures, i.e. methodologies, sources of building materials and supplies, etc.
4. Develop and document a formal archaeological research survey design strategy for the Olympic National Forest.

Chapter III

Response to Issues, Concerns and Opportunities



Olympic National Forest

Chapter III

RESPONSE TO ISSUES, CONCERNS AND OPPORTUNITIES

INTRODUCTION

This chapter briefly presents the response of the Forest Plan to planning issues developed in the scoping process. An early step in development of this plan was the identification of issues, concerns, and opportunities (ICOs) related to management of the Olympic National Forest. ICOs were identified through citizen participation, including public meetings, interagency coordination, personal contacts with individuals and groups, and comments in response to the DEIS and Proposed Forest Plan FEIS. Appendix A describes the process used to summarize public input regarding the original ICOs FEIS. Chapter I describes how the ICOs have been clarified since publication of the DEIS and Proposed Forest Plan.

The Forest identified 13 ICOs which provided the foundation for developing the range of alternatives presented in the FEIS. Each alternative responds to the ICOs in a different way, generating a different mix of goods and services from the Forest. How well each alternative resolves the ICOs depends on the benefits gained by various Forest users. Complete resolution of all ICOs is not feasible. Because of interrelationships among Forest resources, a gain to one user may be a loss to another. Tradeoffs and compromises are necessary to meet the intent of the Multiple-Use Act of 1960. A discussion of tradeoffs that were considered in analyzing all six alternatives, and in identifying the Preferred Alternative, is provided in FEIS Chapter II.

The Forest Plan is the Preferred Alternative (Alternative C-Preferred (Modified)) of the FEIS, it is the alternative the Regional Forester has determined will be of most benefit to the public. Compromises among the ways individual issues could be resolved were necessary in order to arrive at the mix of resource uses that provides the most balanced approach to satisfying diverse interests and desires. In planning terminology, the Preferred Alternative is the one that comes closest to maximizing long-term net public benefit, which is the value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs). Net public benefit is evaluated using both quantitative and qualitative information and assessments rather than a single measure or index, such as monetary value alone.

The ICOs addressed by this Forest Plan include the following.

1. Management of the Scenic Resource
2. Management of Recreation Resources
3. Old-Growth Forest Management
4. Timber Harvest Schedule and Location

RESPONSE TO ISSUES

5. Transportation System Management
6. Management of Soil, Water, and Riparian Areas
7. Fish and Wildlife Habitat Management
8. Management of Unroaded Areas
9. Management of Potential Wild and Scenic Rivers
10. Management of Native Plant Species and Communities
11. Effects of Forest Management on Local Communities
12. Management of the Shelton Cooperative Sustained Yield Unit (CSYIU)
13. American Indian Concerns, Values, and Treaty Rights

The remainder of this chapter will focus on how this Forest Plan addresses each of the above planning questions. For a more detailed discussion of the issues, concerns, and opportunities, and associated planning questions, please refer to Appendix A of the accompanying FEIS. Also see Appendix K of the FEIS, which includes the responses to public comments on the Draft EIS and Plan.

RESPONSE TO ISSUES

1. How should the scenic resource of the Forest be managed?

Response

Approximately 14 percent of the Forest is currently classified under the Visual Quality Objective (VQO) of Preservation (where generally only ecological changes alter the landscape), 4 percent is classified as Retention (management activities are not evident), 11 percent is Partial Retention (management activities may be evident but do not dominate the natural landscape), and the remaining 71 percent is classified as either Modification or Maximum Modification (management activities may dominate the natural landscape but should repeat natural occurrences). Acreages in each Visual Quality Objective classification are as follows:

| Visual Quality Objective | Total Acres | Percent of Forest |
|-------------------------------------|-------------|-------------------|
| Preservation | 89,700 | 14 |
| Retention | 22,600 | 4 |
| Partial Retention | 67,500 | 11 |
| Modification & Maximum Modification | 452,500 | 71 |

Under the direction contained in this Plan, the VQOs will generally be met as inventoried. In the management areas outside of A2-Scenic that are programmed for timber harvesting, the Standards and Guidelines (see Plan Chapter IV) specify that VQOs *should* be met unless rationale is displayed

through an environmental analysis which justifies deviation from the inventoried VQO. Within A2-Scenic areas, the VQOs *shall* be met. Use of the A2-Scenic management prescription has been expanded since the Draft Plan to provide greater assurance of protection of visual quality in highly sensitive areas of the Forest.

The Forest has identified twenty viewsheds that involve sensitive landscapes as viewed from high use areas or travel routes. Under current direction, there would be two viewsheds in a Natural Appearing condition, five in a Slightly Altered condition, six in a Moderately Altered condition, and seven in a Heavily Altered condition. Under this Plan, the ultimate mix of viewshed conditions will be seven Natural Appearing viewsheds and thirteen which appear Slightly Altered.

2. *How should the outdoor recreation resource be managed?*

Response

The Forest currently has 2,285 “persons at one time” (PAOT) capacity for developed camping. Projected demand is for an additional 2,300 PAOT by the end of the first decade (see Chapter II, Table II-8).

The Forest currently provides recreation opportunities in the following Recreation Opportunity Spectrum (ROS) classes. Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Roaded Modified (a subclass of Roaded Natural), and Rural. The Forest has 88,265 acres of Wilderness and approximately 85,800 acres in unroaded areas Refer to Table II-2 in Chapter II for acreage and projected demand by ROS class Refer to FEIS Chapter III, Table III-39 for acreage of each unroaded area. Refer to Tables III-35, 36, and 37 in Chapter III of the FEIS for Wilderness information.

Demand for developed camping will be met by expanding existing sites or constructing new sites. Demand for roaded dispersed recreation will be readily met, since the existing and future road access systems provide capacity for this form of recreation that is well in excess of demand. Roaded dispersed recreation opportunities are now available on approximately 76 percent of the Forest. The remaining 24 percent of the Forest currently provides opportunities for unroaded recreation in the Primitive and Semi-Primitive ROS classes

Currently, the demand for Primitive and Semi-Primitive recreation opportunity exceeds existing RVD capacity. Given this situation, the Forest will be unable to provide the Primitive and Semi-Primitive acreage necessary to meet demand. The quality of Primitive and Semi-Primitive experiences will continue to be impacted by high user densities and management-imposed restrictions aimed at limiting user density. Roughly two-thirds of the existing Primitive and Semi-Primitive recreation opportunity outside Wilderness will be retained in perpetuity under this Plan

Demand for trail availability will be met by both constructing new trails and reconstructing existing trails. Construction of 52 miles of new trails is planned for the first decade in response to projected demand for nonmotorized trail recreation. A total of 331 miles of potential trail has been identified. New trails will be constructed along these potential locations as needed to meet demand. Trail reconstruction will be carried out as needed to maintain the serviceability of the 227 miles of existing trails. For the first decade, trail reconstruction needs totaling 94 miles are projected.

One aspect of the trail question that is relatively new on the Forest is demand for trails in which ORV use is allowed. The trail mileage needed to provide sufficient opportunities for ORVs will be analyzed, and the Forest will then look for opportunities to meet this demand in areas where resource impacts

RESPONSE TO ISSUES

and user conflicts can be avoided. Meeting this demand may involve construction of new trails in the first decade specifically to meet ORV needs. Such construction would be in addition to the 52 miles to be constructed for nonmotorized use. Therefore, the projection of 52 miles in the first decade is a minimum, with the potential for more construction being needed to respond to ORV demand.

Trail and recreation facility construction and reconstruction projects for both developed and undeveloped recreation uses are identified in Appendix A of this Plan.

3. *How should the old-growth resource of the Forest be managed?*

Response

The acreage of old-growth allocated to Spotted Owl Habitat Areas (SOHAs) in this Plan has increased as a result of meeting the direction in the Record of Decision for the Supplemental EIS to the Regional Guide.

Of the 266,800 acres of existing old-growth on the Forest, it is estimated that 244,800 acres of old-growth will remain at the end of the first decade and 185,000 acres will remain at the end of the fifth decade.

The Standards and Guidelines have been expanded to include provision for a timber management prescription which retains some old-growth characteristics in some areas after timber harvest (Chapter IV, Management Area E1).

The new inventory of mature and overmature stands now underway should provide more specific information about existing old-growth on the Forest. Also, stands will be evaluated as they are located on the ground during implementation. This information will be used to assess where it may be appropriate to protect old-growth stands for their ecological, wildlife habitat, and amenity values. Locations of Spotted Owl Habitat Areas may also be shifted during plan implementation as appropriate to better meet the needs of the owl and other resource objectives. The acreage of old-growth by Management Area Prescription is presented in Table III-1.

Table III-1. Estimated Acreage of Old-Growth by Management Area Allocations (Thousand Acres) 1/

| Management Area Allocation | Total Acreage (Thousand Acres) | Old-Growth Acreage (Thousand Acres) | Percent of Total Old-Growth |
|--|-----------------------------------|--|--------------------------------|
| A1A - undeveloped Recreation (Non-Motorized) | 34.5 | 24.5 | 9.2 |
| A1 B - undeveloped Recreation (Motorized) | 6.1 | 4.1 | 1.5 |
| A2 - Scenic | 38.2 | 14.8 | 5.6 |
| A3 - Developed Recreation and Admin Sites | 1.1 | 0.1 | 0.0 |
| A4A - Wild and Scenic Rivers | 1.8 | 0.3 | 0.1 |
| A4B - River Corridors | 17.3 | 8.2 | 3.1 |
| B1 - Wilderness | 88.3 | 46.8 | 17.5 |
| C1 - SOHAs | 75.7 | 57.2 | 21.4 |
| C2 - Pileated & Pine Marten Areas | 4.5 | 3.3 | 1.2 |
| C3 - Bald Eagle Management Areas | 1.1 | 0.7 | 0.3 |
| E1 - Timber Management 2/ | 325.7 | 94.8 | 35.5 |
| F1 - Municipal Watersheds | 33.2 | 8.2 | 3.1 |
| F2 - Riparian Areas 3/ | — | — | — |
| J2 - Research Natural Areas | 1.5 | 1.5 | 0.6 |
| J3 - Botanical Areas | 3.1 | 2.3 | 0.9 |
| TOTAL ACRES | 632.3 | 266.8 | 100 |

1/ All acreages are mutually exclusive, e.g. A4A, C1, C2, J2, and J3 within Wilderness (B1) are reported only as B1.

2/ Contains some riparian area, some constrained scenic management areas, and some unsuitable timberland. Other areas within E1 may not prove to be cost-effective in meeting the objectives of the Plan.

3/ The 177,050 acres of riparian area are distributed across the Forest and are included in the acreage of the other management areas. Constraints are placed on management of riparian zones to meet riparian area protection objectives.

4. *Where should timber be harvested and what is the appropriate harvest level?*

Response

Under this Plan, the National Forest area outside of the Shelton CSYU to be planned for final timber harvest in the first decade will average approximately 2140 acres per year, with an estimated average annual volume of 19.0 MMCF (101.6 MMBF) offered for sale. National Forest land within the CSYU will account for an additional 260 acres and 1.6 MMCF (9.3 MMBF) per year. The long-term sustained yield capacity (LTSYC) is 27.9 MMCF/year outside of the CSYU.

The average annual harvest in decade one for each Ranger District is:

| | |
|--------------|-------------------|
| Hood Canal * | MMCF (9.5 MMBF) |
| Quilcene | MMCF (13.6 MMBF) |
| Quinault | MMCF (48.1 MMBF) |
| Soleduck | MMCF (30.4 MMBF) |
| TOTAL | 101.6 MMBF |

* 95 MMBF does not include volume from Shelton CSYU. See Planning Question #12 (Management of Shelton CSYU) for discussion of National Forest harvest from the CSYU.

RESPONSE TO ISSUES

Appendix A lists the timber sales expected to occur during the next ten years. Probable location, timing, volume, and area are listed for each sale area; however, these may change as site-specific needs are identified through project planning, which includes the environmental assessment (EA) process.

Nonchargeable volume will average an estimated 2.3 MMCF per year. This includes submerchantable timber, salvage, and miscellaneous products. Nonchargeable volume may be removed from lands not designated for timber production but managed to meet special conditions. These conditions are described in Chapter IV, Standards and Guidelines.

Of the 583,800 acres of forested land on the Forest, 446,900 have been determined to be tentatively suitable for timber production. Under the allocations in this Plan, approximately 352,000 acres are suitable for timber management.

5. *How should the existing transportation system be managed, and where should new roads and trails be constructed?*

Response

The Olympic National Forest transportation system is planned, developed, and managed to facilitate accomplishment of the resource management objectives of the Forest Plan. Standards for roads and trails are a direct result of the resource objectives each facility is intended to serve. The costs of construction and maintenance of these facilities are a direct result of the standards used and the operation the facility receives

This Plan projects that an estimated 415 miles of road construction will be needed over the next 50 years to facilitate implementation of management direction. Approximately 141 miles will be constructed during the next ten-year period, with roughly 28 miles of this construction occurring in currently unroaded areas. Use of permanent road closures as a road system management tool will be increased over the long term, as roughly 34 percent of the system is expected to have some form of permanent closure by the end of the fifth decade (as opposed to 23 percent at present). Seasonal closures will remain at about today's level, or roughly 8 percent of the system.

The current transportation system also includes 227 miles of trail. Approximately 15 percent of the trail system is open to motorized vehicles, 69-percent is open to pack and saddle stock use, and 37 percent is open to mountain bicycles. None of the trails are closed to hikers. The trail management plan includes approximately 331 miles of proposed trail. 303 miles are proposed as non-Wilderness trails and the remaining 28 miles are proposed as Wilderness trails. Approximately 33 percent of the proposed trails are identified to be designed and constructed to accommodate motorized use, and 67 percent are identified to be designed and constructed to accommodate a mixture of nonmotorized uses, such as hikers, pack and saddle stock, and mountain bicycles.

Demand for trail availability will be met by both constructing new trails and reconstructing existing trails. Construction of 52 miles of new trails is planned for the first decade in response to projected demand for nonmotorized trail recreation. Trail reconstruction will be carried out as needed to maintain the serviceability of the 227 miles of existing trails.. For the first decade, trail reconstruction needs totalling 94 miles are projected.

One aspect of the trail question that is relatively new on the Forest is demand for trails on which ORV use is allowed. The trail mileage needed to provide sufficient opportunities for ORVs will be analyzed, and the Forest will then look for opportunities to meet this demand in areas where resource impacts

and user conflicts can be avoided. Meeting this demand may involve construction of new trails in the first decade specifically to meet ORV needs. Such construction would be in addition to the 52-miles to be constructed for nonmotorized use.

The trail system will continue to be managed essentially as it is under current direction, but the environment through which most of the existing and proposed trails pass will be more natural appearing than would occur under current direction.

6. *How should the soil and water resources (including riparian areas, hydropower potential, and municipal watersheds) be managed?*

Response

Protection is provided for soil and water resources by leaving areas of vegetation on slopes with high risk of landslides, and by distributing timber harvest across basins to minimize risk of concentrating effects of logging activities within one drainage.

Implementation of direction in this Plan will result in sediment levels being decreased in the first decade by over 40 percent from current levels. The amount of timber harvest activity in riparian areas will be reduced approximately 25 percent from what is currently occurring. Restrictions on potential hydropower developments will occur on the Gray Wolf, Dungeness, and Duckabush Rivers due to Wild and Scenic River recommendations.

Within municipal watersheds, harvest per decade is limited to 16 percent of the acreage in available harvest-age timber stands in order to protect municipal water supplies. In application, this means that no more than five percent of the total area of any municipal watershed will be harvested in the first decade.

In combination with riparian area, River Corridor, and Wild and Scenic River Standards and Guidelines, the application of site-specific measures or Best Management Practices (BMPs) will serve to meet or exceed State water quality standards.

7. *How should fish and wildlife habitat be managed?*

Response

The overall quality of habitat for wildlife on the Forest is most closely correlated with the amount of habitat available for individual wildlife indicator species. These species are intended to collectively represent the habitat needs of all wildlife species that inhabit the Forest. The land allocations and management prescriptions included in this Plan are designed to assure that viable populations of all indicator species (and thus all Forest wildlife species) will be maintained. This assurance is obtained in a variety of ways.

In the case of the northern spotted owl, pileated woodpecker, pine marten, and bald eagle indicator species, population viability is maintained by allocating specific land areas to management prescriptions which preclude timber harvest. The spotted owl, woodpecker, and marten habitat allocations form networks of habitat areas of adequate size and spacing to assure population maintenance for each of these species. In the case of the bald eagle, the Forest will provide 16 nesting and roosting sites of approximately 64 acres each, with harvest precluded within these sites. In addition, other activities that may disturb nesting and roosting will be controlled in the vicinity of the sites.

RESPONSE TO ISSUES

Population viability of the primary cavity excavator indicator species group will be maintained through provisions designed to assure an adequate distribution of snags throughout the Forest. This is to be accomplished by leaving selected snags and green trees (to serve as future snags) within timber harvest units (see “Standards and Guidelines”, Chapter IV, for further detail).

Deer and elk habitat and its carrying capacity will not change significantly from current conditions, although moderate declines in Forest populations of both of these indicator species may occur by the end of the fifth decade due to changes in timber age class structure. Population viability of these indicator species is expected to be maintained without specific allocations precluding timber harvest. However, areas within elk and deer winter range which are identified as necessary for big game winter survival will receive special management, as outlined in the Forest-wide Standards and Guidelines (Chapter IV). This management should serve to avoid significant fluctuations in deer and elk populations.

Direction in this Plan is expected to result in an increase in fish production potential of more than ten percent by the end of the first ten-year period of implementation (assuming completion of anticipated habitat enhancement projects). This corresponds to an estimated 1,200,000 additional anadromous smolts. These smolts will contribute an average annual increase (from current fishery production potential) of 174 thousand pounds of commercial anadromous catch. Fishery-related recreation experiences will total more than 29,000 user days per year.

Under this Plan, application of management practices designed to improve anadromous fish habitat will expand. These include providing sources of large woody material, protection of riparian vegetation, improved road building and maintenance techniques, and site-specific structural improvement projects. The structural improvement projects, which are designed to enhance the basic productive capacity of the Forest’s fish habitat, could increase production potential by as much as ten percent during the initial decade of Plan implementation. This accounts for a substantial proportion of the total projected increase in habitat productivity.

Table III-2 displays, by major Forest drainage, the estimated first-decade productive potential of the Forest’s fish habitat that is expected to result from Plan implementation. Potential production levels of anadromous smolts, anadromous commercial catch, and anadromous and resident recreation use are compared to the current estimated production potential (1988 stream conditions) for these outputs. In the case of anadromous outputs, the production potential associated with full implementation of anticipated anadromous habitat enhancement projects is also shown. It should be noted that these estimates reflect *potential* production, and are based on the assumption that available habitat will be fully utilized. Actual level of utilization depends on many factors beyond the control of the Forest, and has not been projected.

Table III-2. Estimated Potential Annual Fishery Outputs
(On-Forest Habitat Only)

Anadromous Recreation (WFUDs)

| Drainage | Current Potential | Estimated Forest Plan Potential | |
|------------------------|-------------------|---------------------------------|------------------|
| | | Without Enhancement | With Enhancement |
| East Straits | 79 | 72.5 | 79.8 |
| Dungeness | 2,196 | 2,294.4 | 2,523.8 |
| Little Quilcene | 0 | 0.0 | 0.0 |
| Big Quilcene | 570 | 613.5 | 674.9 |
| Dosewallips | 3,177 | 3,173.8 | 3,491.2 |
| Duckabush | 1,519 | 1,525.2 | 1,677.7 |
| Hamma Hamma | 543 | 621.4 | 683.5 |
| Hoodcanal | 0 | 0.0 | 0.0 |
| Skokomish | 2,229 | 2,851.1 | 3,136.2 |
| Satsop | 181 | 213.5 | 234.9 |
| Wynoochee | 1,408 | 1,416.0 | 1,557.6 |
| Humptulips/ Wishkah | 506 | 551.7 | 606.9 |
| Quinault/Raft | 553 | 561.4 | 617.5 |
| Queets | 598 | 675.7 | 743.3 |
| Hoh/Bogachiel | 30 | 30.2 | 33.2 |
| Calawah/Sitkum | 1,294 | 1306.6 | 1,437.3 |
| Soleduck | 1,115 | 1,175.8 | 1,293.4 |
| West Straits | 286 | 292.8 | 322.1 |
| TOTAL | 16,284 | 17,375.6 | 19,113.3 |

Anadromous commercial Catch (1000 lbs)

| Drainage | Current Potential | Estimated Forest Plan Potential | |
|------------------------|-------------------|---------------------------------|------------------|
| | | Without Enhancement | With Enhancement |
| East Straits | 7.7 | 7.4 | 8.1 |
| Dungeness | 167.9 | 175.4 | 192.9 |
| Little Quilcene | 0.0 | 0.0 | 0.0 |
| Big Quilcene | 30.2 | 32.3 | 35.5 |
| Dosewallips | 263.4 | 263.1 | 289.4 |
| Duckabush | 129.4 | 130.0 | 143.0 |
| Hamma Hamma | 16.2 | 18.7 | 20.6 |
| Hood canal | 0.0 | 0.0 | 0.0 |
| Skokomish | 96.1 | 123.4 | 135.7 |
| Satsop | 10.9 | 13.1 | 14.4 |
| Wynoochee | 89.9 | 90.2 | 99.2 |
| Humptulips/ Wishkah | 32.3 | 35.4 | 38.9 |
| Quinault/Raft | 71.5 | 72.5 | 79.8 |
| Oueets | 32.8 | 36.8 | 40.5 |
| Hoh/Bogachiel | 0.4 | 0.4 | 0.4 |
| Calawah/Sitkum | 80.4 | 81.5 | 89.7 |
| Soleduck | 78.1 | 82.3 | 90.5 |
| West Straits | 14.8 | 15.7 | 17.3 |
| TOTAL | 1,122.0 | 1,178.2 | 1,295.9 |

RESPONSE TO ISSUES

Resident Recreation (WFUDs)

| Drainage | Current Potential | Estimated Forest Plan Potential |
|-----------------------|-------------------|---------------------------------|
| East Straits | 244 | 262.3 |
| Dungeness | 189 | 199.8 |
| Little Quilcene | 162 | 154.2 |
| Big Quilcene | 767 | 829.1 |
| Dosewallips | 48 | 40.6 |
| Duckabush | 411 | 330.5 |
| Hamma Hamma | 1,365 | 1,508.9 |
| Hood canal | 186 | 147.2 |
| Skokomish | 1,400 | 1,947.0 |
| Satsop | 704 | 1,132.1 |
| Wynoochee | 476 | 628.3 |
| Humtulpis/ Wishkah | 980 | 1,129.4 |
| Quinalt/Raft | 412 | 470.5 |
| Queets | 359 | 453.9 |
| Hoh/Bogachiel | 40 | 42.5 |
| Calawah/Sitkum | 561 | 550.6 |
| Soleduck | 472 | 520.1 |
| West Straits | 1509 | 1,482.2 |
| TOTAL | 10,285 | 11,829.1 |

Smolt Production (1000 smolts)

| | | Estimated Forest Plan Potential | |
|-----------------------|-------------------|---------------------------------|------------------|
| Drainage | Current Potential | Without Enhancement | With Enhancement |
| East Straits | 97.2 | 91.7 | 100.9 |
| Dungeness | 2,381.8 | 2,490.4 | 2,739.4 |
| Little Quilcene | 0.0 | 0.0 | 0.0 |
| Big Quilcene | 105.4 | 113.4 | 124.7 |
| Dosewallips | 3,614.2 | 3,609.1 | 3,970.0 |
| Duckabush | 1,672.1 | 1,679.2 | 1847.1 |
| Hamma Hamma | 25.8 | 29.5 | 32.5 |
| Hoodcanal | 0.0 | 0.0 | 0.0 |
| Skokomish | 202.2 | 258.4 | 284.2 |
| Satsop | 27.8 | 32.9 | 36.2 |
| Wynoochee | 235.1 | 236.6 | 260.3 |
| Humtulpis/ Wishkah | 105.3 | 114.4 | 125.8 |
| Quinalt/Raft | 298.3 | 302.4 | 332.6 |
| Queets | 93.1 | 105.1 | 115.6 |
| Hoh/Bogachiel | 1.8 | 1.8 | 1.8 |
| Calawah/Sitkum | 191.1 | 193.2 | 212.5 |
| Soleduck | 272.0 | 286.3 | 314.9 |
| West Straits | 88.3 | 90.1 | 99.1 |
| TOTAL | 9,411.5 | 9,634.5 | 10,597.6 |

8. *How should the unroaded areas of the Forest be managed?*

Response

Currently, there are approximately 85,800 acres within 13 unroaded areas on the Forest. Most of these are adjacent to the five Wildernesses and/or Olympic National Park. Refer to FEIS Chapter III, Table III-39, for current acreage by unroaded area.

Under management direction contained in this Plan, approximately 57,500 acres of the existing 85,800 acres of unroaded areas will remain unroaded. These unroaded areas, combined with the Wildernesses and the Quinault Research Natural Area, will retain approximately 23 percent of the Forest in an unroaded condition.

Of the 57,500 acres of unroaded area to be retained, 41,900 acres will fall in the Primitive or Semi-Primitive ROS classes. Primitive and Semi-Primitive recreation opportunities will be retained in portions of 11 unroaded areas and in all of two unroaded areas. A total of 35,225 acres in unroaded areas are allocated to Management Area A1A-Undeveloped Recreation (Nonmotorized), while 6,138 acres will be in Management Area A1B-Undeveloped Recreation (Motorized). In addition to allocations to Undeveloped Recreation prescriptions, portions of existing unroaded areas are included in SOHAs and other allocations which prohibit timber harvest, and will thus remain unroaded.

Additional information may be found in Chapter IV of this Plan and Appendix C of the FEIS.

9. *How should the corridors adjacent to potential Wild and Scenic Rivers be managed?*

Response

This Plan recommends that three rivers, the Dungeness, Gray Wolf, and Duckabush, be designated as part of the Wild and Scenic River System. The lands within these river corridors will be managed to retain their wild and scenic values (Management Prescription A4B). Four other eligible rivers are proposed for suitability analysis and recommendation by the National Park Service, as their corridors have only minor acreages on National Forest land. These are the Quinault, Hoh, Bogachiel, and Elwha Rivers.

Givers that meet Wild and Scenic River eligibility criteria, but are not recommended for designation, will be managed as River Corridors (Management Prescription A4B). A total of 14 rivers are assigned this management prescription. This includes the four rivers recommended for analysis by the National Park Service.

Additional management direction may be found in Chapter IV of this Plan, and further detailed information is in FEIS Appendix F, Wild and Scenic Rivers.

10. *How should the Forest's native plant species and communities be managed?*

Response

This Plan provides for the protection of several areas containing native plant communities. Included are 12 Botanical Areas totaling 6,320 acres. Of this total, 3,095 acres are within Wilderness, and 1,372 acres are within other allocations which prohibit timber harvest, such as Undeveloped Recreation (A1A Management Prescription). These Botanical Areas are designed to protect an array of native plant

RESPONSE TO ISSUES

species, ranging from large old western redcedar and Alaskan yellow cedar through fragile alpine wildflowers. Standards and Guidelines for Botanical Areas are found under Management Prescription J3.

One additional Research Natural Area (J2 Management Prescription) recommendation is made for the Wet Weather Creek site, which is located entirely within the Buckhorn Wilderness. This area will be managed to maintain its potential research values. The existing Quinault RNA will continue to be managed under its current management plan.

The Standards and Guidelines are designed to protect other sensitive plant species during project design and implementation.

11. *How will management of Forest Resources affect local communities?*

Response

During the first 10 years of Plan implementation, Forest outputs will generate an estimated 5,500 jobs/year in the four counties in which the Forest is located. This estimate is based on current employment coefficients for Forest outputs, and does not incorporate possible changes in labor productivity. The estimated employment associated with this Plan is 84 percent of the employment that has been supported by Forest outputs over the last 9 years. The projected decrease in jobs is due to timber harvest levels expected to be 22.5 percent lower than the average harvest level of 380 MMBF between 1980 and 1988.

While the reduced timber harvest level is expected to result in employment decreases, these will be mitigated to some extent by increased employment in the recreation and commercial fishing sectors. Increases in recreation use and fishery outputs are projected to generate approximately 350 new jobs (including commercial fishing employment associated with improved off-Forest fish habitat conditions). These jobs will offset roughly 30 percent of the timber-related employment change. The net employment change in the first decade is estimated to be a reduction of approximately 800 person-years of employment per year.

During the first decade, an average of \$4.5 million/year (in 1982 dollars) should be distributed to the four counties for school and road programs from the sale of National Forest timber. This is 17 percent less than the average of \$5.4 million/year that was paid between fiscal years 1985 and 1989. Payments are expected to decrease primarily because volume of timber harvest is expected to decline.

12. *How should the Shelton Cooperative Sustained Yield Unit (Shelton CSYU) be managed?*

Response

National Forest lands within the Shelton CSYU are managed and administered by the Hood Canal Ranger District. Timber harvest activity within the CSYU has shifted from National Forest land to Simpson Timber Company land. Under this Plan, the area planned for timber harvest from National Forest lands in the next decade will average approximately 260 acres per year, with an estimated average annual volume of 9.3 MMBF (1.6 MMCF) offered for sale to Simpson Timber Company. Total annual yield from the CSYU, which includes harvest volume from Simpson Timber Company lands, will be approximately 192.7 MMBF (41.2 MMCF).

RESPONSE TO ISSUES

This Plan incorporates the requirements of the National Forest Management Act (NFMA) on all National Forest lands within the Shelton CSYU. Implementation of this Plan does not require changes in the existing Cooperative Agreement governing the management of the CSYU, and none are proposed (see Chapter IV of this Plan for further management direction regarding the Shelton CSYU).

13. *How will American Indian concerns, values, and treaty rights be addressed by this Plan?*

Response

In response to extensive dialogue with the American Indian community, comments received at meetings, and written public responses, the planning documents have been substantially strengthened to more adequately address the concerns of American Indians. This Plan ensures that treaty rights and fundamental opportunities relating to religious, ceremonial, and traditional concerns will be protected and preserved. The Plan recognizes these treaty and statutory rights and values, and acknowledges that they have an important place in American Indian culture. The Plan also recognizes the importance of ancestral sites, uses of Forest resources, and the value placed on western redcedar and salmon resources.

During Plan implementation, the Forest will continue to coordinate with the American Indian community, ensuring that concerns regarding protection of ancestral sites and freedom to continue traditional religious uses of Forest land and resources are resolved.

Other concerns of the tribes regarding protection of fish, wildlife, and other resources have been addressed in the Plan through appropriate management area allocations and Standards and Guidelines. For example, the River Corridor prescription has been applied to fourteen rivers, and the Wild and Scenic River prescription has been applied to three rivers. These allocations will provide substantial protection for anadromous fisheries, and help resolve a major tribal concern. The numerous allocations to the Botanical Area prescription will provide protection of areas utilized by Peninsula tribes for traditional purposes, including plant gathering (when this is not in conflict with Botanical Area objectives).

Chapter IV

Forest Management Direction



Olympic National Forest

Chapter IV

FOREST MANAGEMENT DIRECTION

INTRODUCTION

This chapter presents the management goals, objectives, standards, and guidelines that provide direction for resource management covered by this Plan. Included in this chapter are:

FOREST MANAGEMENT GOALS established in the planning process to aid in developing the Plan, and to provide for multiple use and other goals of management.

DESIRED FUTURE CONDITION OF THE FOREST which describes what the Forest should look like 10 years and 50 years into the future, after management direction contained in this Plan has been implemented.

FOREST MANAGEMENT OBJECTIVES which display the levels of goods and services anticipated as the Plan and projected budgets are implemented. A narrative summary of resource outputs and schedules is provided.

FOREST-WIDE STANDARDS AND GUIDELINES which state the parameters or constraints within which management practices will be carried out to achieve management objectives.

MANAGEMENT AREA PRESCRIPTIONS which contain a description of each management prescription and management area, and the standards and guidelines applicable to each management area.

FOREST MANAGEMENT GOALS

Forest management goals are statements that describe the future condition this Plan is designed to achieve. They are expressed in general terms, are usually not quantified, and are timeless in that they have no specific date by which they are meant to be completed.

Forest planning goals are derived from public issues and management concerns. Where appropriate, these goals are also linked to the direction given in the Regional Guide. It is the intent of the Plan to achieve the following multiple use goals.

GOALS FOR COORDINATION WITH OTHER AGENCIES AND THE PUBLIC

In carrying out its basic multiple-use mission, the Forest will cooperate with other government agencies, organizations, and individuals having an interest in National Forest management. Special emphasis will

FOREST MANAGEMENT GOALS

be given to coordinating management activities with Peninsula Indian tribes, Olympic National Park, Washington State Departments of Natural Resources, Wildlife, and Fisheries, U.S. Fish and Wildlife Service, and county and local governments. In partnership with these and other agencies, the Forest will assist in providing sound forest management leadership throughout the Olympic Peninsula area.

GOALS FOR RESOURCE PROGRAMS

SCENERY

1. Manage sensitive viewsheds in such a manner that their landscape character and scenic qualities are maintained or enhanced.
2. Manage other resources in areas outside of viewsheds in such a manner that visual quality objectives are met. When visual quality objectives will not be met, activities will be planned and designed to minimize visual impacts upon the landscape.
3. Manage viewsheds where the Existing Visual Condition is not compatible with the Visual Quality Objectives by implementing management activities aimed at rehabilitating existing visual impacts.

RECREATION

1. Provide a range of recreation opportunities across the Recreation Opportunity Spectrum (ROS) except for the Urban class. Opportunities will be compatible with resource capabilities and responsive to public needs and expectations.
2. Manage a network of system trails that involves a range of trail management objectives and user opportunities. Assure that barrier-free trail opportunities are available.
3. Encourage and foster new and unique opportunities to develop partnerships and cooperative ventures with other agencies, user groups, and private enterprises that will enhance recreation opportunities and resource management.
4. Provide an informational program that will: (a) provide accurate, courteous public service in all management activities, (b) assist the public in planning safe activities and enjoyable experiences, and (c) provide the public with information and opportunities that will assist them in gaining a better understanding of individual resources and their management.
5. Provide safe and well-maintained facilities at developed recreation sites that offer a range of opportunities and experiences. Assure that facilities are readily accessible to a diverse public, including the physically impaired.
6. Provide a range of undeveloped recreation opportunities aimed at maximizing user satisfaction while minimizing user conflicts, overcrowding, and the need for law enforcement intervention.
7. Provide interpretive facilities and programs that will: (a) assist resource managers in implementing and accomplishing resource management objectives, (b) help visitors increase their awareness and understanding of resource management practices, (c) increase the visitor's

FOREST MANAGEMENT GOALS

understanding of and orientation to the Forest's resources and features, and (d) provide opportunities for enhancement of the visitor's recreation experience.

8. In conjunction with recreation tract expiration dates, Forest Service policy, and the Lake Quinault South Shore Composite Plan, conduct periodic reviews of "highest and best use" determinations for land occupied by recreation residences. Review will be from the perspective of the values, opportunities, and benefits represented by limited, single-family recreation residence use versus the broader spectrum of opportunities that may be needed to meet future public needs and desires.

WILDERNESS

1. Manage Wildernesses in accordance with the Wilderness Act of 1964.
2. Follow a nondegradation policy that recognizes that a variety of natural and social settings can be found in Wilderness. The primary intention of this policy is to ensure that existing settings do not fall below their present condition simply to accommodate more use. In some cases, management actions will be necessary to restore areas to acceptable conditions.
3. Provide a range of recreational opportunities within the Wilderness Resource Spectrum (WRS) that is compatible with resource capabilities.
4. Utilize the Limits of Acceptable Change process as a management tool to prevent unacceptable impacts or changes within Wilderness.

WILDLIFE HABITAT

1. Emphasize contacts with Olympic Peninsula Indian tribes and Federal and State provide for coordinated wildlife habitat management.
2. Manage wildlife habitat to maintain (at a minimum) viable populations of all existing native vertebrates (36 CFR 219.19).
3. Maintain and improve habitat for management indicator species (36 CFR 219.12).
4. Provide for and maintain diversity of plant and animal communities to meet overall multiple use objectives (36 CFR 219.26).

FISH HABITAT

1. Emphasize contacts with Olympic Peninsula Indian tribes and Federal and State agencies to provide for coordinated fish habitat management.
2. Maintain and improve fish habitat for indicator species groups (i.e., anadromous and resident fish).

FOREST MANAGEMENT GOALS

RANGE

If requested, provide for livestock grazing at a level commensurate with other resource needs.

VEGETATION

1. Enhance the growth, utilization, and salvage of wood and wood products to help meet the region's short- and long-term needs.
2. Continue to produce timber outputs on suitable Forest lands consistent with other resource values and cost-efficiency.
3. Provide for management of sufficient old-growth to meet resource needs, including habitat for old-growth dependent species such as the northern spotted owl.
4. Provide fuelwood collection opportunities and uses of other miscellaneous forest products (such as mushrooms, berries, and plants) to the extent that it does not jeopardize resource values.

Protect communities of native plant species.

SOIL, WATER AND AIR

1. Protect, conserve, and enhance the long-term productivity of forest soils for the multiple uses of the Forest.
2. Provide for water quality needs for municipal and domestic water supply.
3. Protect rivers, streams, shorelines, lakes, wetlands, flood plains, and other riparian areas during implementation of management activities.
4. In cooperation with other Federal, State, and local agencies, provide air quality that meets or exceeds Federal regulations and State standards.

MINERALS AND ENERGY

1. Maintain a program that accommodates exploration, development, and utilization of mineral and energy resources. The program should provide for development in balance with environmental values and other resource management objectives. Maintain dialogue with mining and energy interest groups to seek opportunities in mining and energy development which serve changing public needs.
2. Assess and evaluate the potential for mineral and energy resources such as hydropower, geothermal, wood (biomass), wind, coal, oil, and gas.

FOREST MANAGEMENT GOALS

RESEARCH NATURAL AREAS (RNAs)

1. Provide for continued research and educational opportunities in natural ecosystems.
2. Recommend establishment of additional RNAs for recognized needs of the RNA Program.

HUMAN AND COMMUNITY DEVELOPMENT

1. Emphasize human resource and equal opportunity programs and the opportunities they provide to help implement Forest resource and support programs.
2. Develop an active, positive program of volunteers for the Forest.

CULTURAL RESOURCES

1. Inventory and evaluate all known and existing cultural resources. Complete nominations for all known properties that are eligible for the National Register of Historic Places.
2. In cooperation with others, especially the Olympic National Park, continue to build a database to establish and refine contexts for cultural resource properties. Manage cultural resources cooperatively whenever appropriate.
3. In concert with the Office of Archaeology and Historic Preservation, continue to integrate the cultural resource management program and the land-use decision making process with the State of Washington Resource Protection Planning Process.
4. Develop cooperative and mutually beneficial partnerships with local historical societies, museums, schools, and others for development of interpretive programs and projects that will provide public appreciation and enjoyment of cultural resources.

AMERICAN INDIANS

1. Promote understanding and awareness by managers and employees at all levels of the rights, concerns, and culture of American Indians. Foster stable working relationships with tribal contacts at all organizational levels. Assure that American Indians are well-represented in the Forest Service work force at all levels.
2. Accomplish regular contact, communication, and program management coordination between District Rangers and the tribal leaders within their respective zones of influence.
3. Working in conjunction with Peninsula Indian tribes, sponsor local events and activities that foster awareness and appreciation of American Indian culture.
4. Endeavor to fully redeem treaty responsibilities and obligations in all aspects of land and resource management.

FOREST MANAGEMENT GOALS

LANDS

1. Complete priority land exchange, acquisition, and disposal cases identified in the Land Adjustment Plan to facilitate accomplishment of resource management objectives identified in the Forest Plan.
2. Post all Olympic National Forest property lines and monument all corners.
3. Assure effective and efficient resolution of situations involving illegal or non-conforming uses of National Forest land.
4. Complete road and trail transportation planning for all National Forest land that may require access over private land. Acquire rights-of-way needed for National Forest management purposes.
5. Issue potable water system component authorizations only for improvements that contribute, or will contribute, to public utility system development. In consultation with County Health Departments, avoid single-use water system development in favor of systems that benefit the general public and promote formation of utility districts.
6. When practical, limit new utility and transportation corridor development to existing routes to avoid proliferation of impacts and fragmented maintenance responsibilities. Take advantage of opportunities to use transportation and utility corridors for compatible purposes, such as bicycle paths, cross-country skiing routes, wildlife habitat, and production of miscellaneous forest products.
7. Accept applications for new special use permit authorizations only if applicant has provided completed plans, environmental studies, and supporting documentation that would justify issuance of a permit. Use collection agreements in order to cover the cost of processing and issuing permits. Inspect and administer permits through self-inspection programs and processes.

GOALS FOR SUPPORT PROGRAMS

FOREST PROTECTION

1. Protect life, property, and Forest resources from wildfire.
2. Protect Forest resources from insect or disease epidemics.
3. Prevent or reduce serious long-lasting hazards from pest organisms under the principles of integrated pest management (IPM).
4. Plan prescribed burning to minimize smoke intrusion into sensitive areas and maintain air quality at a level that conforms to Federal regulations and State standards.
5. Where appropriate, use prescribed fire as a management tool to improve resource production, including increasing wildlife habitat quality and forage potential.

FOREST MANAGEMENT OBJECTIVES

FACILITIES

1. As they are needed, provide and maintain capital investments such as buildings, utility systems, roads, trails, fences, and bridges.
2. Provide for efficient construction, operation, and maintenance of transportation facilities on the Forest.
3. Maintain facilities for the safety, enjoyment, and well-being of the intended user.
4. Work closely with various interest groups and individuals to consider common road and trail objectives and resolve potential conflicts.

SOCIO-ECONOMIC

1. Contribute to the viability of local community economies.
2. Assist resource dependent communities in identifying needs and opportunities relating to economic and social changes, and aid such communities in developing the resources needed to prepare for and manage their futures.
3. Contribute to the satisfaction of local, regional, and national demands for goods and services available from the Forest.
4. Contribute to the well-being of Peninsula Indian tribes through partnerships in land management, employment, cultural programs, and treaty-related issues.

COST-EFFICIENCY

Strive for cost-efficiency in the accomplishment of resource management objectives.

FOREST MANAGEMENT OBJECTIVES

The National Forest Management Act (NFMA) regulations define an objective as “a concise, time-specific statement of measurable planned results that respond to pre-established goals.” Objectives reflect mixes of outputs or achievements which can be obtained at a given budget level within a stated time period. Objectives are the annual resource outputs that serve to accomplish goals of this Forest Plan.

Goods and services to be provided by this Plan are summarized in Table IV-1. This table also indicates the funding level necessary to meet these planned outputs. If final budgets are different than those shown in Table IV-1, then outputs will vary according to the final funding levels. Data presented are for average annual outputs for the first five decades.

FOREST MANAGEMENT OBJECTIVES

A narrative description of the resources (outputs) follows Table IV-1.

PROJECTED OUTPUTS

Outputs shown in Table IV-1 represent average annual outputs expected during Plan implementation for the first five decades. Actual outputs may vary up or down from year to year within a decade, but should average to the figures shown over the full decade.

Table IV-1. Resource Output Summaries

| Output | NAS Codes | Unit Measure | Decade 1 | Decade 2 | Decade 3 | Decade 4 | Decade 5 |
|--|-----------|--------------|----------|----------|----------|----------|----------|
| Recreation | | | | | | | |
| Developed Recreation use | AN122 | 1,000 RVDs | 411.1 | 447.6 | 488.1 | 511.3 | 599.9 |
| Developed camping capacity | AN122 | 1,000 PAOTs | 4.6 | 5.0 | 5.5 | 6.1 | 6.7 |
| Non-Wilderness Undeveloped Recreation Use | | | | | | | |
| Roaded | AN122-1 | 1,000 RVDs | 917.3 | 1,002.6 | 1,102.7 | 1,176.2 | 1,374.4 |
| Unroaded | AN122-1 | 1,000 RVDs | 32.4 | 36.6 | 40.6 | 44.7 | 49.1 |
| Wilderness Use | AW1 | 1,000 RVDs | 97.3 | 104.7 | 114.3 | 120.9 | 140.2 |
| Construction | | | | | | | |
| Developed Sites | AN22 | PAOT | 230.0 | 40.0 | 50.0 | 60.0 | 56.0 |
| Trails | AT22 | Miles | 6.2 | 3.1 | 3.4 | 3.8 | 4.2 |
| Reconstruction | | | | | | | |
| Developed Sites | AN22 | PAOT | 95.0 | 80.0 | 56.0 | 56.0 | 66.0 |
| Trails | AT22 | Miles | 9.4 | 5.7 | 4.0 | 3.0 | 3.0 |
| Maintenance Trails | AT23 | Miles | 22.7 | 27.9 | 31.0 | 34.4 | 38.2 |
| Visual Quality objectives | | | | | | | |
| Preservation | AV112 | Acres | 89,733 | 89,733 | 89,733 | 89,733 | 89,733 |
| Retention | AV112 | Acres | 22,600 | 22,600 | 22,600 | 22,600 | 22,600 |
| Partial Retention | AV112 | Acres | 67,500 | 67,500 | 67,500 | 67,500 | 67,500 |
| Unroaded Areas Assigned to Unroaded Management | NA | Acres | 57,500 | 57,600 | 57,500 | 67,500 | 57,500 |
| Wild & Scenic Rivers Proposed | AN12 | Number | 3 | 3 | 3 | 3 | 3 |
| | AN12 | Miles | 30 | 30 | 30 | 30 | 30 |
| River corridors | NA | Number | 14 | 14 | 14 | 14 | 14 |
| | NA | Miles | 116.5 | 116.5 | 116.5 | 116.5 | 116.5 |

FOREST MANAGEMENT OBJECTIVES

| Output | NAS Codes | Unit Measure | Decade 1 | Decade 2 | Decade 3 | Decade 4 | Decade 5 |
|--|-----------|---------------------------------|----------|----------|----------|----------|----------|
| Wildlife and Fish | | | | | | | |
| Wildlife Use | CW1 | 1,000 WFUDs | 50.9 | 48.2 | 45.9 | 41.9 | 41.8 |
| Fisheries Use | CW1 | 1,000 WFUDs | 29.2 | 28.6 | 28.5 | 27.8 | 29.4 |
| Anadromous Fish | | | | | | | |
| Commercial Harvest | CA1 | 1,000 lbs Fish | 1,178 | 1,165 | 1,165 | 1,139 | 1,178 |
| Habitat Improvement | CA2 | 1,000 lbs Fish | 118 | 232 | 232 | 228 | 237 |
| Management Indicator Species | | | | | | | |
| Spotted Owl | CW1 | Number of Pairs | 83 | 76 | 70 | 64 | 63 |
| Pileated Woodpecker | CW1 | Number of Pairs | 814 | 741 | 680 | 626 | 614 |
| Marten | CW1 | Number of Pairs | 1,525 | 1,389 | 1,276 | 1,171 | 1,151 |
| Primary Cavity Excavators | CA1 | Percent of Potential Population | 70 | 67 | 66 | 64 | 64 |
| Black-Tailed Deer | CW1 | Number | 6,423 | 6,125 | 5,773 | 5,180 | 5,179 |
| Roosevelt Elk | CW1 | Number | 3,031 | 2,829 | 2,769 | 2,624 | 2,619 |
| Bald Eagle | CW1 | Number of Pairs | 756 | 720 | 688 | 659 | 643 |
| Wildlife Habitat Improvement | CW221 | Structures | 442 | 442 | 442 | 442 | 442 |
| | CW222 | Acres | 715 | 715 | 715 | 715 | 715 |
| TE&S Habitat Improvement | CT221 | Structures | 7 | 7 | 7 | 7 | 7 |
| | CT222 | Acres | 800 | 800 | 800 | 800 | 800 |
| Anadromous Fish Habitat | CF221 | Structures | 302 | 302 | 302 | 302 | 302 |
| | CF222 | Acres | 17 | 17 | 17 | 17 | 17 |
| Inland Fish Habitat Improvement | CI221 | Structures | 34 | 34 | 34 | 34 | 34 |
| | CI222 | Acres | 8 | 6 | 8 | 8 | 8 |
| Old-growth Forest (Midpoint of Decade) | ET11 | Acres | 256,000 | 234,000 | 214,000 | 196,000 | 187,000 |
| Range-Permitted Use | DN1 | 1,000 AUMs | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |

FOREST MANAGEMENT OBJECTIVES

| Output | NAS Codes | Unit Measure | Decade 1 | Decade 2 | Decade 3 | Decade 4 | Decade 5 |
|--|-----------|-----------------|---------------|----------|----------|----------|----------|
| Timber | | | | | | | |
| Suitable Lands | ET251 | 1,000 Acres | 352.1 | 352.1 | 352.1 | 352.1 | 352.1 |
| Acres Clearcut | ETII | 1,000 Acres | 2.4 | 3.0 | 3.1 | 4.1 | 2.4 |
| Acres Commercial Thinning | ETII | 1,000 Acres | 0.6 | 0 | 0.1 | 0.1 | 0.3 |
| Timber Offered - Allowable Sale Quantity | | | | | | | |
| National Forest Outside CSYU | ET11 | MMCF MMBF | 19.0 101.6 | 20.6 | 24.0 | 25.7 | 25.7 |
| National Forest Within CSYU | ET11 | MMCF MMBF | 1.6 9.3 | 3.1 | 4.2 | 10.9 | 2.5 |
| Total National Forest | ET11 | MMCF MMBF | 20.6 110.9 | 23.7 | 28.2 | 36.6 | 28.2 |
| Simpson timber Company | NA | MMCF MMBF | 39.6 183.4 | 38.1 | 37.1 | 30.4 | 43.7 |
| Total - all lands | ET11 | MMCF MMSF | 60.2 294.3 | 61.8 | 65.3 | 87.0 | 71.9 |
| Fuelwood | ET12 | MCF | 69.0 | 76.0 | 68.0 | 51.0 | 29.0 |
| Long-Term Sustained Yield Total | | | | | | | |
| National Forest | NA | MMCF | 35.9 | 35.9 | 35.9 | 35.9 | 35.9 |
| Timber Growth in 2030 | NA | MMCF | | | | | 34.0 |
| Reforestation | | | | | | | |
| Total National Forest | ET24 | Acres | 2,412 | 3,045 | 3,118 | 4,091 | 2,354 |
| Simpson timber Company | NA | Acres | 6,497 | 4,871 | 4,218 | 3,105 | 4,503 |
| Timber Stand Improvement | | | | | | | |
| Total National Forest | ET25 | Acres | 3,502 | 3,434 | 1,809 | 2,284 | 2,338 |
| Simpson timber Company | NA | Acres | 1,124 | 1,966 | 5,497 | 4,871 | 4,218 |
| Water | | | | | | | |
| Yield | FW1 | 1,000 Acre Feet | 5,933 | 5,934 | 5,934 | 5,936 | 5,933 |
| Sediment | FW1 | Tons | 114,600 | 131,000 | 133,900 | 161,500 | 118,400 |
| Improved Watershed Condition | FW22 | Acres | 445 | 410 | 400 | 390 | 260 |
| Riparian Area | | | | | | | |
| Harvested | NA | Acres | 614 | 776 | 794 | 1,042 | 600 |
| Percent of Total Area | NA | Percent | 0.3 | 0.4 | 0.4 | 0.6 | 0.3 |
| Energy | | | | | | | |
| Woody Residues | NA | 1,000 Tons | 72.6 | 91.7 | 93.3 | 85.4 | 70.9 |
| Energy Potential | NA | Billion BTUs | 587.9 | 739.4 | 752.3 | 688.6 | 570.1 |
| Research Natural Areas | | | | | | | |
| | NA | Number | 2 | 2 | 2 | 2 | 2 |
| | NA | Acres | 2,600 | 2,600 | 2,600 | 2,600 | 2,600 |
| Botanical Areas | | | | | | | |
| | NA | Number | 12 | 12 | 12 | 12 | 12 |
| | NA | Acres | 6,320 | 6,320 | 6,320 | 6,320 | 6,320 |

FOREST MANAGEMENT OBJECTIVES

| Output | NAS Codes | Unit Measure | Decade 1 | Decade 2 | Decade 3 | Decade 4 | Decade 5 |
|--|-----------|-------------------|----------|----------|----------|----------|----------|
| Minerals | | | | | | | |
| AreaWithdrawn | GM1 | 1,000 Acres | 105.5 | 105.5 | 105.5 | 105.5 | 105.5 |
| Restrictions on Mineral Activity | | | | | | | |
| High | GM1 | 1,000 Acres | 108.9 | 108.9 | 108.9 | 108.9 | 108.9 |
| Moderate | GM1 | 1,000 Acres | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 |
| Low | GM1 | 1,000 Acres | 381.9 | 381.9 | 381.9 | 381.9 | 381.9 |
| Common Variety Mineral Used | GM | 1,000 Cubic Yards | 51 | 50 | 50 | 50 | 50 |
| Fire Management | | | | | | | |
| Effectiveness Index | PF1 | 11,000 Acres | 1,856 | 2,171 | 2,112 | 2,052 | 1,993 |
| Fuel Treatment | PF2 | Protected Acres | 893 | 1,127 | 1,154 | 1,514 | 871 |
| Road System | | | | | | | |
| Arterial and Collector Roads | | | | | | | |
| Construction | LT222 | Miles | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Reconstruction | LT223 | Miles | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Timber Purchaser Roads | | | | | | | |
| Construction | LT222 | Miles | 13.1 | 11.1 | 8.0 | 5.9 | 1.4 |
| Reconstruction | LT223 | Miles | 11.7 | 12.3 | 12.7 | 13.0 | 13.0 |
| Road Construction in Undeveloped Areas | LT222 | Miles | 2.8 | 2.1 | 1.4 | 0.7 | 0.0 |
| Road Inventory Suitable for Public Use | | | | | | | |
| Passenger Car | 1523 | Miles | 717 | 689 | 677 | 671 | 665 |
| High Clearance Vehicle | LT23 | Miles | 1,281 | 1,300 | 1,319 | 1329 | 1,338 |
| Road inventory Open/Closed | | | | | | | |
| Road Mileage Open | LT23 | Miles | 1,998 | 1,989 | 1,996 | 2,000 | 2,003 |
| Road Mileage Closed | LT23 | Miles | 737 | 887 | 940 | 995 | 1,006 |
| Economic and Social Variables 1/ | | | | | | | |
| Operational Costs | NA | Million \$ | 9.0 | 9.6 | 10.2 | 11.6 | 10.3 |
| Capital investment Costs | NA | Million \$ | 6.7 | 7.5 | 8.0 | 9.3 | 7.3 |
| Total Forest Budget | | | | | | | |
| Allocated | NA | Million \$ | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 |
| Appropriated | NA | Million \$ | 15.6 | 17.0 | 18.1 | 20.7 | 17.4 |
| Return to Government | NA | Million \$ | 2.2 | 5.7 | 10.4 | 14.4 | 5.0 |
| Payments to Counties | NA | Million \$ | 4.5 | 5.7 | 7.2 | 8.8 | 5.6 |
| Changes in Income | NA | Million \$ | -17.0 | — | — | — | — |
| Changes in Jobs | NA | Total | | | | | |
| | | Number | -800 | — | — | — | — |
| Human Resource Program | HS | Person Years | 14 | 16 | 16 | 16 | 16 |

1/ Monetary values in 1982 dollars.

RESOURCE SUMMARIES

This section provides a summary of general management direction governing land uses, activities, and output levels associated with each of the Forest's principal resources under the provisions of this Plan. Projections of anticipated levels of outputs and effects are also provided. More detailed management direction is included later, in the standards and Guidelines' section of this chapter, as well as in management plans covering individual resources or programs (such as the Olympic National Forest Trail Plan). See Chapter V for a complete listing of these plans, which are on file at the Forest Supervisor's office.

FOREST MANAGEMENT OBJECTIVES

WATER QUALITY

Municipal Watersheds

There are 9 municipal watersheds on the Olympic National Forest, ranging in average daily use from 4,000 gallons per day to 5.5 million. To be classified as a municipal watershed, a water supply source must meet one of the following criteria: (1) at least 25 individuals are sewed at least 60 days per year, or (2) at least 15 service connections are provided.

Four of the Forest's municipal watersheds, the Dungeness, Big Quilcene, Little Quilcene, and Wishkah Rivers, serve major Peninsula cities. The water supply for the city of Sequim is derived from infiltration galleries adjacent to the Dungeness River. The Big Quilcene is the primary water source for the city of Port Townsend, with the Little Quilcene used periodically as a backup system. A letter of intent from the USDA Forest Service establishes cooperation with the city in regard to activities within both of these drainages. The Wishkah River serves the city of Aberdeen. A Memorandum of Understanding between the USDA Forest Service and the city establishes policies for protecting the water quality of this water supply system.

Direction for management of municipal watersheds is provided in the "Standards and Guidelines" section of this chapter. The primary goal is to provide high quality water by minimizing soil erosion and the introduction of chemicals or bacteria. Activities in these watersheds will be somewhat restricted. Examples are:

1. Overnight camping is prohibited in the Wishkah watershed.
2. Herbicides and pesticides should not be used in municipal watersheds, except as needed to control roadside vegetation.

Provisions contained in Forest-wide standards and guidelines and the watershed management prescription are designed to assure continued high-quality water in these areas.

Sediment

Sediment is the water quality parameter most often changed by management activities. The cumulative effect of sediment from nonpoint sources can cause reductions in water quality and result in lowered fish habitat productivity. Because of the significance of sediment, and the desirability of minimizing sediment levels, many provisions and limitations regarding soil disturbance and erosion control are included as standard features of project design criteria. Specific direction regarding such requirements is detailed in Forest-wide standards and guidelines, and throughout the management prescriptions detailed later in this chapter.

In addition to standards and guidelines covering the conduct of project-related activities, there are several provisions of this Plan which will serve to reduce sediment output. These provisions are: Best Management Practices (FEIS Appendix J), mitigation and enhancement measures common to all alternatives (FEIS Chapter II), the Management Requirement attainment strategies applicable to riparian areas, and increased road closures. Road closures will be a primary tool for reducing sediment from areas where traffic is a prime contributor in wet weather. The anticipated effect of the combination of allocations, activities, and standards and guidelines specified in this Plan is an overall reduction in sedimentation. Expected sediment indices are displayed in Table IV-2. The current index of sediment output above natural levels is approximately 192,000 tons per year.

Table iV-2. Projected Sediment indices
(Average Annual Output, in Tons)

| Decade | Sediment index |
|--------|----------------|
| 1st | 114,600 |
| 2nd | 131,000 |
| 3rd | 133,900 |
| 4th | 161,500 |
| 5th | 118,400 |

Other Water Quality Parameters

Most streams on the Forest have water temperatures near or below optimum levels for aquatic organisms. Therefore, stream temperature concerns are normally minimal. Streams on the east side of the Olympic Peninsula have steep gradients and are fast-flowing, with little opportunity for solar radiation to heat the water. Streams on the west side have low gradients in the broad, flat lands off-Forest. Water temperature increase could be of concern in these areas, for example, in the case of a hot summer combined with low stream flow.

Bacteriological and chemical water quality of streams on the Peninsula has historically been very good. Low counts of coliform bacteria and dissolved chemical constituents have been found in periodic water samples collected by the U.S. Geological Survey over the past 20 years. In the last decade, however, the number of cases of Giardiasis, a waterborne disease, has shown a marked increase. This has not been attributed to Forest management activities.

It is anticipated that activities associated with this Plan will not reduce the chemical and bacteriological quality of Peninsula streams, nor will they affect water temperature regimes to any measurable extent. Projects having the potential of introducing undesirable bacteria or chemicals into streams are governed by standards and guidelines designed to minimize this potential.

FOREST MANAGEMENT OBJECTIVES

TIMBER HARVEST AND MANAGEMENT

Suitability

Table IV-3 displays the stratification of suitability for timber production applicable to the Olympic National Forest under the provisions of this Plan.

Table IV-4. Timberland Classification

| Classification | Acres |
|--|---------|
| 1. Non-forested land (includes water) | 48,535 |
| 2. Forest land | 583,789 |
| 3. Forest land legislatively withdrawn from timber production | 68,055 |
| 4. Forest land physically unsuitable | |
| —irreversible damage likely to occur | 27,761 |
| —not restockable within 5 years | 41,034 |
| 5. Tentatively suitable forest land (hem 2 minus hems 3 and 4) | 446,939 |
| 6. Forest land not allocated to timber production in this Plan | |
| —Reserved for other resource uses | 27,340 |
| —Needed to meet Management Requirements | 67,490 |
| 7. Unsuitable forest land (hems 3, 4, and 6) | 231,680 |
| 8. Total suitable forest land (hem 2 minus hem 7) | 352,109 |
| 9. Total National Forest land (hems 1 and 2) | 632,324 |

Productivity

An approximation of timber productivity for the Forest is shown in Table IV-4. Information in the table correlates to an average productivity for the Forest of 124.5 cubic feet per acre per year, assuming intensive timber management.

Table IV-4. Timber Productivity Classification of Suitable Lands

| Potential Growth (Cubic Feet/Acre/Year) | Suitable Lands (Acres) |
|--|------------------------|
| Less than 20 | 0 |
| 56 | 53,800 |
| 76 | 8,000 |
| 110 | 137,500 |
| 142 | 19,200 |
| 158 | 96,000 |
| 190 | 37,600 |
| TOTAL | 352,100 |

FOREST MANAGEMENT OBJECTIVES

Silvicultural Treatments

Forest stands managed to produce wood fiber (timber) are treated in different ways to improve timber growth rates. These treatments, known as silvicultural treatments, are scheduled at various times in a forest's life cycle, timing depends on factors such as stand age, productivity class, tree species, and cost versus benefit.

Table IV-5 displays the average annual acreage of each silvicultural treatment likely to be scheduled on suitable forest land in the first decade of this Plan. See Appendix G in the FEIS for additional information on the selection of harvest cutting method.

Table IV-5. Silvicultural Treatments
(Average Annual Acreage in First Decade, by Ownership)

| Practice | National Forest Land | Simpson Timber Company Land |
|--|----------------------|-----------------------------|
| Harvest | | |
| Regeneration (clearcut) | 2,412 | 5,497 |
| Intermediate (commercial thinning) | 564 | 0 |
| Timber Stand improvement (thinning) | 3,450 | 1,124 |
| Reforestation (natural and artificial) | 2,412 | 5,497 |
| Fertilization | 490 | 4,843 |

Timber Sale Program Quantity

The timber sale program quantity includes the total amount of wood fiber programmed (funded) to be sold in a fiscal year. It consists of the allowable sale quantity (ASQ) plus additional volume incidental to that quantity. These volumes are displayed in Table IV-6.

In this Plan, the ASQ from suitable National Forest land is 19.0 million cubic feet (101.6 million board feet) from areas outside the Shelton CSYU, and 1.6 MMCF (9.3 MMBF) from National Forest land within the CSYU. In addition, it is expected that an additional 2.3 million cubic feet (12.4 million board feet) of down, defective, or substandard material will be removed. This includes 0.2 million cubic feet from National Forest land within the Shelton CSYU. Therefore, the total expected annual timber sale program quantity from all suitable National Forest lands is 22.9 million cubic feet, or 123.3 million board feet. ASQ from Simpson Timber Company land within the Shelton CSYU is expected to average 39.6 MMOF (183.4 MMBF) per year, with an additional 4.4 MMCF (20.4 MMBF) per year of incidental material.

FOREST MANAGEMENT OBJECTIVES

Table IV-6. Allowable Sale Quantity and timber Sale Program Quantity
(Annual Average for First Decade)

| Harvest Method | Sawtimber 1/ | Other Products 1/ |
|---|------------------|-------------------|
| Eastside and Westside Zones | | |
| Allowable Sale Quantity 2/ | | |
| Regeneration harvest (clearcut) | 17.7 | 0 |
| Intermediate harvest (commercial thinning) | 1.3 | 0 |
| Total ASQ | 19.0 | 0 |
| Additional Sales 3/ | 0 | 2.1 |
| Timber Sale Program Quantity | 19.0(101.6 MMBF) | 2.1(11.3 MMBF) |
| Shelton CSYU Zone (National Forest) | | |
| Allowable Sale Quantity | | |
| Regeneration harvest (clearcut) | 1.6 | 0 |
| Intermediate harvest (commercial thinning) | 0 | 0 |
| Total ASQ | 1.6 | 0 |
| Additional Sales 3/ | 0 | 0.2 |
| Timber Sale Program Quantity | 1.6(9.3 MMBF) | 0.2(1.1 MMBF) |
| Shelton CSYU Zone (Simpson timber Co.) | | |
| Allowable Sale Quantity | | |
| Regeneration harvest (clearcut) | 39.6 | 0 |
| Intermediate harvest (commercial thinning) | 0 | 0 |
| Total ASQ | 39.6 | 0 |
| Additional Sales 3/ | 0 | 4.4 |
| Lumber Sale Program Quantity | 39.6(183.4 MMBF) | 4.4(20.4 MMBF) |

1/ Volumes in million cubic feet.

2/ Includes only chargeable volume from suitable land.

3/ Includes only nonchargeable volume from suitable or unsuitable land.

Relationship of Allowable Sale Quantity to Long-Term Sustained Yield Capacity

Based on calculations made in the planning process, the allowable sale quantity (ASQ) for the Eastside and Westside zones is expected to be lower than long-term sustained yield capacity (LTSYC) in the early decades on suitable forest land. Calculations made for the Shelton CSYU indicate that ASQ in the early decades will also be lower than LTSYC. See Table IV-7 for these relationships.

Table IV-7. Relationship of ASQ to LTSYC

| | Decade | AGO (MOP) | LTSYC (MOP) |
|-----------------------------|--------|-----------|-------------|
| Eastside and Westside Zones | 1 | 19,005 | 27,941 |
| | 2 | 20,594 | 27,941 |
| | 3 | 24,046 | 27,941 |
| | 4 | 25,672 | 27,941 |
| | 5 | 25,672 | 27,941 |
| | 6 | 25,672 | 27,941 |
| Shelton CSYU | 1 | 41,283 | 62,066 |
| | 2 | 41,283 | 62,066 |
| | 3 | 41,283 | 62,066 |
| | 4 | 41,283 | 62,066 |
| | 5 | 48,184 | 62,066 |
| | 6 | 62,066 | 62,066 |

Present and Future Forest Conditions

The current and expected future age class distribution of trees on suitable forest land is displayed in Table IV-8. Information in the table provides an indication of expected age and size class diversity of the future forest.

Table IV-8. Age Class Distribution (Acres)

| Age Class | Present Forest | Future Forest 1/ |
|-----------|----------------|------------------|
| 10 | 48,300 | 29,600 |
| 20 | 47,700 | 36,600 |
| 30 | 45,300 | 35,900 |
| 40 | 40,000 | 31,200 |
| 50 | 2,000 | 41,200 |
| 60 | 0 | 35,000 |
| 70 | 500 | 36,300 |
| 80 | 13,500 | 36,000 |
| 90 | 8,500 | 32,500 |
| 100 | 9,100 | 3,000 |
| 110-150 | 35,700 | 20,500 |
| 160+ | 103,500 | 14,700 |
| TOTAL | 352,100 | 352,100 |

1/ Future forest in 150 years based on FORPLAN calculations.

OLD-GROWTH

Several management areas are allocated to uses which assure that the old-growth forest within them will be reserved from timber harvest. Examples of these are areas where Primitive and Semi-Primitive recre-

FOREST MANAGEMENT OBJECTIVES

ation opportunities are to be retained. Land delineations designed specifically to provide old-growth habitat (such as Management Areas C1 and C3) will assure maintenance of additional old-growth forest. Management guidelines for riparian areas, and attainment of Retention and Partial Retention Visual Quality Objectives, will also contribute to the total availability of old-growth forest. Specific direction regarding such requirements is detailed in Forest-wide standards and guidelines and throughout the management prescriptions (especially C1 and C3) detailed later in this chapter.

At present, there are about 266,800 acres of old-growth on the Forest. This represents about 42 percent of the total Forest area, and about 46 percent of forested land. Of the 266,800 acres of old-growth, approximately 170,004) acres (64 percent) are considered to be tentatively suitable for timber production. The remaining 96,800 acres are in areas classified as unsuitable for timber production (including Wilderness) in all alternatives, and are expected to remain as old-growth throughout the planning horizon.

Of the tentatively suitable acreage currently classified as old-growth, approximately 68,500 acres are allocated to uses which preclude programmed timber harvest. The remaining 101,500 acres are included in the timber harvest base. Old-growth on these acres will diminish as timber harvest proceeds. It is estimated that 81,800 acres will be harvested by the end of the fifth decade. The projected availability of old-growth forest at the end of each of the first five decades is displayed in Table IV-9. These figures vary from those in Table IV-1, since those in IV-1 reflect *average annual* outputs. The old-growth remaining at the midpoint of each decade is used to best represent these average annual figures. Table IV-9 reports old-growth remaining at the *end* of each decade. Note that these projections are estimates only, and that actual acreage will depend on the on-the-ground implementation of the timber harvest program.

Table IV-9. Protected Old-growth (Acres)

| Decade | Cumulative Old-growth Harvested | Total Remaining at End of Period |
|---------|---------------------------------|----------------------------------|
| Present | | 266,800 |
| 1st | 21,900 | 244,900 |
| 2nd | 43,800 | 223,000 |
| 3rd | 62,000 | 204,800 |
| 4th | 78,700 | 188,100 |
| 5th | 81,800 | 185,000 |

RIPARIAN AREAS

Riparian areas are to be managed so as to protect, maintain, or improve their unique values as they relate to wildlife and fish habitat and water quality. Activities within riparian areas are to result in a diversity of vegetative communities of various species, sizes, and age classes through time so as to continuously provide the following conditions.

1. A vegetative pattern within streamside zones capable of maintaining stream channel and bank structure sufficient to maintain water quality in Class 1,11, and ill streams at or above existing levels,
2. A source of both present and future supplies of natural woody debns adequate to maintain fish habitat at or above existing levels (in general, most large, woody debris entering a stream comes from the zone within 100 feet of the channel); and
3. A pattern of diverse and well-distributed wildlife habitat types.

FOREST MANAGEMENT OBJECTIVES

Specific direction regarding requirements for riparian management is described in Forest-wide standards and guidelines and throughout management prescriptions (especially F2) detailed later in this chapter.

Riparian areas will also be managed for timber production, where this is compatible with the above management goals and other resource objectives of this Plan. Forest-wide, riparian areas contain approximately 98,600 acres of timberland classified as suitable for timber production. Under the land allocations and timber harvest objectives specified in this Plan, it is estimated that roughly 13,900 acres, or about 14 percent, will be harvested within riparian areas in the first 20 years. When timber harvesting activities do occur in riparian areas, it will be primarily along Class III and IV streams. It is expected that this level of harvest will be compatible with Plan objectives for providing desired riparian vegetative conditions.

WILDLIFE HABITAT

Several allocations have been made for the specific purpose of perpetually providing adequate availability of suitable habitat for key wildlife species. The goal of these allocations is to provide for the maintenance of sufficient habitat to assure viable populations of indicator species dependent upon old-growth and mature forest habitat types. These allocations represent the means of meeting Management Requirements for wildlife habitat maintenance developed for this Plan, and are as follows:

- 30 spotted owl habitat areas (SOHAs) averaging 3000 acres each
- 16 bald eagle nest sites and wintering areas (6 of which are partially included in owl, pileated woodpecker, or marten areas)
- Four 300-acre pileated woodpecker areas (an additional 52 are included in SOHAs)
- Twenty-two 160-acre pine marten areas (an additional 133 are included in SOHAs and pileated woodpecker areas)

Approximate locations of spotted owl, pileated woodpecker, and marten habitat areas are displayed on the maps accompanying this document.

Current information indicates that these habitat allocations will be sufficient to assure maintenance of viable populations of wildlife indicator species dependent on old-growth and mature forest habitat. Timber harvest is precluded within these habitat areas, as are other management activities which would compromise habitat integrity. Specific direction regarding such requirements is described in the Forest-wide standards and guidelines, and throughout the management prescriptions (especially C1, C2, and C3) detailed later in this chapter. Additional old-growth and mature forest habitat will be maintained in other allocations which preclude or limit timber harvest.

The Columbian black-tailed deer and Roosevelt elk also serve as indicator species, representing wildlife associations which require a mix of vegetative age classes. While no specific land allocations are made in this Plan to assure maintenance of elk and deer habitat, it is expected that vegetative patterns which result from Plan implementation will provide an acceptable mix of habitat conditions. Elk and deer populations are expected to remain quite stable throughout the early decades of the planning horizon. By the fifth decade, the conversion of substantial acreages of existing forest to younger age classes as timber harvest progresses may result in a moderate decline in elk and deer populations as tree canopies close and available forage decreases.

The relative condition of elk and deer habitat can be measured in terms of the Wildlife and Fish User Days (WFUDs) of recreation projected to be available as a result of big game population levels. Such estimates are linked directly to elk and deer populations, as these are the principal species receiving

FOREST MANAGEMENT OBJECTIVES

consumptive recreation use (primarily hunting) on the Olympic National Forest. At present, approximately 49,950 wildlife-related WFUDs are produced each year by Forest habitat. It is estimated that Plan implementation will result in little change in this output over the next 20 years—50,900 WFUDs per year are anticipated in the first decade, 48,200 in the second. An output of 41,800 WFUDs per year is projected for the fifth decade.

In addition to the means of meeting Management Requirements for indicator species habitat, there are several specific provisions of this Plan designed to provide for maintenance or enhancement of overall habitat quality. These include:

1. Emphasis on habitat quality in the management of riparian areas.
2. Implementation of wildlife habitat improvement projects specified in Appendix A of this Plan.
3. Continued use of seasonal road closures during critical periods in order to reduce wildlife disturbance.

FISH HABITAT

Among the allocations designed to provide for or protect fish habitat are the Wild and Scenic River (A4A), River Corridor (A4B), and Riparian (F2) Management Areas. Standards and guidelines provide additional measures of protection. The primary goal of management is to maintain fish habitat at, as a minimum, its existing level of productivity. Beyond this, the objective is to manage habitat so as to promote the highest level of productivity that can be achieved in a cost-efficient manner.

Two principal factors affect fish habitat quality: the availability of large organic debris and the level of sedimentation. Management prescribed for riparian areas in this Plan is, in part, designed to assure a continuous source of large organic debris, thereby providing a sufficient supply of this habitat component. Standards and guidelines covering techniques for road design, construction, reconstruction, and maintenance, as well as guidelines for harvest within riparian areas, serve the purpose of holding sediment output rates within acceptable limits. These provisions, in combination with the overall allocation and management activity patterns included in this Plan, are projected to provide a level of fish habitat quality somewhat above that which currently exists.

Fish habitat quality is to be maintained or improved through implementation of habitat improvement projects outlined in Appendix A of this Plan. These projects, if carried out on an annual basis through the next five decades, have the potential to increase habitat productivity by 20 percent. First decade increases are expected to be approximately 10 percent, as it will take some time for the full effects of the enhancement program to be felt. It is expected that this program of regular habitat improvements will be extended beyond the first decade, as continuous application is necessary if long-term benefits are to be fully realized.

The fishery-related outputs expected to result from implementation of this Plan are displayed in Table IV-10. Note that these are estimates only, and that actual results could vary from anticipated levels. One key factor influencing output levels is escapement. If the number of adult anadromous fish returning to spawn is insufficient to fully seed available habitat, the resultant fishery outputs will not fully reflect habitat capability. The output projections in Table IV-10 are based on the assumption that escapement will be adequate.

FOREST MANAGEMENT OBJECTIVES

Projected outputs are shown for unenhanced (i.e. habitat improvement projects not included) habitat conditions. Commercial anadromous catch is expressed in thousands of pounds of fish, and sport fishery outputs are displayed as thousands of WFUDs of recreation. Numbers of anadromous smolts (in thousands) which can be produced by expected unenhanced habitat conditions are also shown. Outputs presented are those associated with on-Forest habitat only.

Table IV-10. Projected Fishery Outputs
(Average Annual Production in Thousands)

| Decade | Smolt (number) | Commercial Catch (lbs) | Recreation WFUDs |
|--------------------|----------------|------------------------|------------------|
| 1st | 9,635 | 1,178 | 29.2 |
| 2nd | 9,581 | 1,165 | 28.6 |
| 5th | 9,683 | 1,178 | 29.4 |
| Average -- 1st-5th | 9,603 | 1,165 | 28.7 |

AIR QUALITY

The principal Forest activity affecting air quality is the use of prescribed fire in the treatment of timber harvest residues. In order to limit the effects of burning on the quality of air within populated zones and other sensitive areas, prescribed fire is to be used only when predicted weather conditions (wind patterns in particular) are such that air quality in these areas can be maintained. Specific direction regarding these requirements is described in Forest-wide standards and guidelines and throughout the management prescriptions detailed later in this chapter.

Concern regarding the effect of prescribed fire on air quality has increased considerably in recent years. As a result of this growing interest, the Washington State Implementation Plan (required by Clean Air Act Amendments of 1977) contains a proposed objective of reducing emissions from prescribed fire to no more than 65 percent of the 1976-1979 level by 1990. Attainment of this objective can necessitate use of treatment methods other than burning. Increased utilization of what is now referred to as residues is the preferred method of disposing of excess residues.

Table IV-11 displays the tonnage of total suspended particulates (TSP) expected to result from disposal of residue by burning. These projections are based on the assumption that the current practice of removing substantial proportions of total residue for uses such as fuelwood and pulp material will continue into the future. Under the proposed objectives of the Washington State Implementation Plan, the Forest's limit on TSP output would be 3,837 tons per year in 1990. This is considerably above the level expected to occur under the above assumption.

Table IV-11 Projected Total Suspended Particulates (TSP)

| Decade | TSP (Tons/yr) |
|--------|---------------|
| 1st | 1,654 |
| 2nd | 2,086 |
| 5th | 1,613 |

FOREST MANAGEMENT OBJECTIVES

RECREATION

The Olympic National Forest will continue to provide a range of recreation activities and opportunities. The Olympic's recreation program will emphasize: (a) opportunities to implement the National Recreation Strategy, (b) development and maintenance of high quality developed recreation sites, and (c) a wide variety of undeveloped recreation opportunities in a range of outdoor settings.

National Recreation Strategy

The Forest will strengthen existing partnerships, and develop new ones, aimed at providing customer satisfaction through high-quality services and improved facilities. Partnerships with other agencies, recreation user groups, and private enterprise will be sought to strengthen the Olympic's recreation program.

Developed Sites

The Forest's developed site program will continue to provide readily accessible and appropriately designed and maintained facilities for people seeking a convenient recreation experience. Major emphasis will be placed on:

1. Maintaining existing sites to a high standard. Maintenance will focus on providing facilities and settings that are consistent with management objectives while providing for the needs and safety of the visitor.
2. Reconstructing or replacing substandard sites and facilities. Sites with high visitor use will receive highest priority. Other rehabilitation priorities are: (a) resolve safety problems, (b) resolve sanitation problems, (c) resolve potable water problems, (d) protect resources, (e) protect investments, and (f) resolve user conflicts. Sites inventoried for reconstruction within the period covered by this Plan are listed in Appendix A.
3. Selecting materials and facilities based on the latest technology, management objectives, Forest experience, and user preferences.
4. Meeting demand for developed camping capacity See Table IV-12 for the capacity needed to meet projected demand for developed campgrounds. Demand will be met by:
 - (a) Expanding existing sites having high use and adequate space for expansion. Priorities are the same as in number 2 above. Sites inventoried for expansion within the period covered by this Plan are listed in Appendix A.
 - (b) Constructing new sites where public demand exists, high quality opportunities are present, and resource management objectives are compatible. Sites inventoried for expansion within the period covered by this Plan are listed in Appendix A.

FOREST MANAGEMENT OBJECTIVES

Table IV-12. Projected Demand for Developed Site Capacity

| | | PAOT Demand per Decade (Ms) | | | | |
|-----------------|-------------------|-----------------------------|-----|-----|-----|-----|
| | Existing Capacity | 1 | 2 | 3 | 4 | 5 |
| Capacity (PAOT) | 2.3 | 4.6 | 5.0 | 5.5 | 6.1 | 6.7 |

5. Implementing management direction for recreation residences and the Lake Quinault Resort as directed in the Lake Quinault South Shore Composite Plan. Any increase in proposed development will be analyzed in terms of recreation opportunities, recreation user demand, public service, and consistency with management direction.

Undeveloped Recreation

The Forest will continue to provide a variety of undeveloped activities and opportunities. Management of dispersed recreation areas and the construction of facilities to support dispersed recreation activities will be consistent with the Recreation Opportunity Spectrum class of each area. Management will place major emphasis on:

1. Providing a variety of opportunities for both dispersed motorized and dispersed nonmotorized recreation. The Forest will begin to develop facilities and provide opportunities to accommodate the expected increases in off-road vehicle use and snow-play activities. Dispersed opportunities inventoried for development within the period covered by this Plan are listed in Appendix A.
2. Minimizing conflicts among recreation users.
3. Providing opportunities for ORV use which do not result in significant resource damage or lead to conflicts with other trail users. Currently, approximately 15 percent (35 miles) of the existing trails are open to ORV use. Only "street legal" ORVs are allowed on Forest Service roads. ORVs are limited to roads and trails, where they are legally allowed, due to steep terrain and dense vegetation. The Forest has identified approximately 110 miles of potential ORV trail. Actual trail mileages and locations will be based on the Olympic Peninsula Off-Road Vehicle Management Study, demand for ORV trails, and individual project analyses.
4. Providing a trail system that meets demand while providing for a variety of recreation user groups. See Table IV-13 for the trail mileages needed to meet projected demand. Opportunities for both multiple-use and single-use trails within the various ROS classes will be considered. There are approximately 227 miles of existing trail on the Forest, and 331 miles of potential trail location have been identified. Priorities for the Olympic's trail system will focus on maintenance needs, upgrading substandard trails, and constructing new trails in response to management objectives, use levels, available funding, and public input. A major emphasis will be to increase trail mileage outside of Wilderness. Trails and trailheads inventoried for construction or reconstruction within the period covered by this Plan are listed in Appendix A. Refer to FEIS Chapter III, Tables III-28 through III-32, for additional trail information.

FOREST MANAGEMENT OBJECTIVES

Table IV-32. Projected Demand for Trails

| | | Demand for Trail Miles by Decade | | | | |
|----------------|----------------|----------------------------------|-----|-----|-----|-----|
| | Existing Miles | 1 | 2 | 3 | 4 | 5 |
| Miles of Trail | 227 | 279 | 310 | 344 | 382 | 424 |

5. Developing educational and informational programs and techniques to encourage visitors to protect resources, minimize user impacts and conflicts, and become more involved with National Forest management. Interpretive facilities and programs will be developed to help accomplish management goals, and to provide visitors with information that will ensure an enjoyable and safe visit to the Forest.
6. Managing a road system that will provide for a wide range of undeveloped recreation activities and opportunities. Management will continue to recognize driving for pleasure as a major activity on Forest roads. Recreation management objectives will be given emphasis in road design, location, and maintenance.
7. Using timber management activities to both develop new dispersed recreation opportunities and enhance existing facilities and opportunities.

SCENERY

The Forest will continue to implement the USDA Forest Service Visual Management System, with emphasis on maintaining the natural or near natural character of the landscape within specific viewsheds (Management Area A2-Scenic). Landscapes visible from key recreation travel routes and use areas will involve management practices and techniques that will meet the Visual Quality Objectives of Retention and Partial Retention. Management of landscapes outside of scenic viewsheds will be aimed at meeting Visual Quality Objectives, unless this is determined to be incompatible with other resource management objectives.

It is intended that viewshed implementation schedules will be prepared for each viewshed. These schedules will provide management direction and prescriptions aimed at maintaining and/or enhancing the scenic quality within each viewshed. These schedules will be prepared by an interdisciplinary team that includes a landscape architect and a silviculturist.

Implementation of the Forest Plan will produce subtle changes in the appearance of many of the Forest's viewsheds. The existing and expected visual conditions of each viewshed are shown in Table IV-14. The future conditions shown represent expected long-term results rather than immediate changes.

FOREST MANAGEMENT OBJECTIVES

Table IV-14. Viewshed Visual Condition

| Viewshed | Acres | Visual Quality | Existing Condition 2/ | Future Condition 2/ |
|------------------------|--------|----------------|-----------------------|---------------------|
| Hoodsport Highway | 1,977 | R & PR | NA | SA |
| Dosewallips Road | 6,065 | R & PR | MA | SA |
| Jupiter Ridge Trail | 1,319 | R | HA | NA |
| Duckabush Road | 1,591 | R & PR | NA | NA |
| Hamma Hamrna Road | 6,135 | R & PR | NA | NA |
| Lena Lake Trail | 697 | R | NA | NA |
| Big Creek Road | 2,661 | R & PR | MA | SA |
| Lake Cushman Road | 7,581 | R & PR | SA | NA |
| Quilcene Highway | 6,449 | R & PR | SA | SA |
| Mt. Walker | 3,508 | R & PR | HA | NA |
| Quinault Highway | 6,373 | R & PR | NA | SA |
| North Shore Road | 1,769 | PR | SA | SA |
| South Shore Road | 6,494 | R & PR | NA | NA |
| Moclips Highway | 400 | PR | NA | SA |
| S. Fork Skokomish Road | 3,296 | PR | SA | SA |
| Wynoochee | 5,792 | PR | MA | SA |
| Soleduck Highway 101 | 25,288 | R & PR | SA | SA |
| Soleduck Park Road | 2,053 | R & PR | SA | SA |
| Elwha Park Road | 183 | R | NA | SA |
| Hoh Road | 454 | R | NA | SA |
| TOTAL | 90,085 | | | |

1/ R = Retention, PR = Partial Retention

2/ NA = Natural Appearance, SA = Slightly Altered Appearance, MA = Moderately Altered Appearance, HA = Heavily Altered Appearance

The Visual Management System is to be used in the development of resource programs and activities to maintain high levels of scenic quality where specified Application of the System is expected to provide high quality results when landscape architectural design concepts and visual resource management principles are applied. Integration of visual concerns into project management is necessary to retain or enhance scenic quality National Forest Landscape Management Handbooks are available as guides, and should be consulted. A few viewshed schedules have been developed to provide specific direction for management of the scenic resource. Additional viewshed schedules will be completed during this planning period.

WILDERNESS

Wilderness management will continue to focus attention on preserving and protecting the primeval character and the opportunities for solitude, challenge, risk, and inspiration in each of the Olympic's five Wildernesses. Major emphasis will be placed on:

1. Implementing a nondegradation policy aimed at maintaining each Wilderness in at least as wild a condition as it was at the time of Wilderness classification. The intent is to assure that appropriate diversity and Wilderness character are maintained. It is also intended that the Pristine areas of the Wildernesses not be changed to a lesser standard of naturalness simply to disperse users and accommodate more use.
2. Preparing implementation schedules for each Wilderness.

FOREST MANAGEMENT OBJECTIVES

3. Implementing the Limits of Acceptable Change process, monitoring the results, and initiating preventive or rehabilitative measures when limits are about to be exceeded.
4. Continuing educational and informational programs and activities to encourage Wilderness users to: (a) support the Limits of Acceptable Change program, (b) practice minimum impact techniques, and (c) participate as volunteers in Wilderness management.

The Forest's five Wildernesses are:

| Wilderness | District | Total Acres | Primitive Acres | Semi-Primitive Acres |
|-----------------|------------|-------------|-----------------|----------------------|
| Buckhorn | Quilcene | 44,258 | 26,502 | 17,756 |
| Colonel Bob | Quinalt | 11,961 | 7,037 | 4,924 |
| Mt. Skokomish | Hood Canal | 13,015 | 7,434 | 5,581 |
| The Brothers | Hood Canal | 16,682 | 10,059 | 6,623 |
| Wonder Mountain | Hood Canal | 2,349 | 1,414 | 935 |
| TOTAL | | 88,265 | 52,446 | 35,819 |

WILD AND SCENIC RIVERS

River corridors for which specific management direction is prescribed in this Plan fall into three distinct categories:

1. Corridors for which Congressional designation as Wild and Scenic River is recommended in this Plan;
2. Corridors eligible for classification as Wild and Scenic River, but for which the Forest Service is not the logical lead study agency; and
3. Corridors for which classification as Wild and Scenic River is not recommended in this Plan, but which are to be managed to provide protection for many of the corridor characteristics.

Specific direction regarding requirements for management of each of the above categories is described in management prescriptions A4A and A4B, detailed later in this chapter.

The first of the above categories includes three river corridors: the Duckabush, Dungeness and Gray Wolf River systems. These corridors are recommended for inclusion in the Wild and Scenic River System, and are to be managed to retain characteristics that qualify them for such designation. The segment of the Dungeness River to be recommended runs from the Forest boundary upstream to its confluence with the Gray Wolf River. The Duckabush is to be managed as a Wild River within The Brothers Wilderness, and as a Scenic River from the Wilderness boundary to the Forest boundary. It meets the criteria for a Recreational River designation in the segment from the Forest boundary to the mouth. The Gray Wolf River is to be managed as a Wild River within Buckhorn Wilderness. The Gray Wolf downstream from Road 2927, and the eligible section of the Dungeness downstream from the mouth of the Gray Wolf, are to be managed as Scenic Rivers.

The second category includes four river corridors which are eligible for Wild and Scenic River status, but which lie predominantly within Olympic National Park and contain relatively small acreages managed by the Olympic National Forest. The National Park Service is considered to be the logical lead

agency in conducting classification studies regarding these corridors. The Quinault, Hoh, Elwha, and Bogachiel Rivers fall into this category. The National Forest portions of these river corridors are to be managed to retain the features qualifying them for consideration as Wild, Scenic, or Recreational Rivers until classification studies have been conducted and recommendations made. For the purposes of allocations in this Plan, they are River Corridors (Management Prescription A4B).

The third category includes ten river corridors: the main stem and West Fork of the Humptulips, main stem and South Fork of the Skokomish, Dosewallips, Hamma Hamma, Wynoochee, East Fork Humptulips, Saleduck, Sam's, Calawah and its three forks, and Big Quilcene Rivers. These corridors will be managed to meet a variety of objectives, and will be managed with a range of intensities as specified in the Standards and Guidelines contained in this chapter.

The management direction for the Forest's rivers is summarized in Table IV-15. Please refer to the map overlay which accompanies this Plan for a detailed display of allocations associated with each river segment.

Table IV-15 River Allocations

| | Miles | Acres |
|---------------------------------------|-------|--------|
| Wild and Scenic River Recommendations | | |
| Wild Rivers (A4AW) | 18.1 | 6,600 |
| Scenic Rivers (44A5) | 11.9 | 3,700 |
| River Corridor Allocations | | |
| Minimum Management | 9.3 | 1,200 |
| Natural Management | 53.4 | 10,300 |
| General Management | 53.8 | 11,600 |

UNROADED AREAS

As a result of the land allocations made in this Plan involving the thirteen unroaded areas, two areas (McDonald and Moonlight Dome) will retain their entire acreages in an unroaded condition. The Moonlight Dome area is allocated to undeveloped recreation, and the McDonald area is allocated to spotted owl habitat management. In the remaining eleven unroaded areas, portions of each area (ranging from 10 percent to 80 percent) are programmed for timber harvesting. Some of the parts of these areas that remain unroaded do so because of high timber management costs. Such areas may or may not provide additional recreation opportunities. Of the current 85,800 unroaded area acres, approximately 57,500 (67 percent) will remain unroaded.

Table IV-16 lists the individual unroaded areas, their current acreages, and the acreage to be retained in an unroaded state.

FOREST MANAGEMENT OBJECTIVES

Table 1V-1 6. Current and Pulure Unroaded Acreages by Area

| Unroaded Area | Current Acreage 1/ | Unroaded Acreage Retained 1/ | Allocation 2/ |
|-------------------|--------------------|------------------------------|------------------|
| McDonald | 500 | 500 | C1 |
| Quilcene | 19,000 | 14,200 | A1A A4A F1 C1 |
| Mt. Zion | 5,400 | 3,600 | A1B C1 E1 |
| Green Mountain | 4,500 | 700 | A2 C1 F1 |
| Jupiter Ridge | 8,300 | 4,500 | A1A A2 A4A C1 E1 |
| Jefferson Ridge | 9,400 | 4,300 | A1A A2 C1 E1 |
| Lightning Peak | 7,200 | 5,400 | A1A A2 C1 E1 |
| Upper Skokomish | 6,200 | 5,000 | A1 A C1 E1 |
| Moonlight Dome | 5,900 | 5,900 | A1A |
| S. Quinault Ridge | 9,800 | 7,400 | A1A A2 J2 C1 |
| Rugged Ridge | 4,600 | 2,500 | C1 E1 |
| Mt. Baldy | 3,900 | 2,500 | A1B A2 C1 |
| Madison Crook | 1,100 | 1,000 | C1 E1 |
| TOTAL | 85,800 | 57,500 | |

1/ Acres have been rounded off

2/ Portions of the unroaded area are allocated to these management prescriptions

A1A - Undeveloped Recreation Non-Motorized All

A1B - Undeveloped Recreation Motorized

A2 - Scenic

A4A - Wild and Scenic River

C1 - Spotted Owl Habitat

E1 - Timber Production

F1 - Municipal Watershed

J2 - Research Natural Area

ROADS

The development, maintenance, and management of the Forest development road system is to be continued as needed to respond to resource management objectives. The majority of road-related activities will occur in support of the timber management program, with additional projects undertaken to facilitate recreational use, Forest administration, and resource protection. The primary objective of road development and management is to establish and maintain a cost-effective road system that serves management objectives efficiently while protecting environmental quality. Direction detailing development, management, and environmental protection requirements for the Forest road system are described in Forest-wide standards and guidelines and throughout the management prescriptions detailed later in this chapter.

Management of the Forest development road system is documented in the Road Management Objectives developed for each system road. These objectives, which are available for review at the Forest Supervisor's Office, establish the operation and maintenance standards necessary to serve resource management objectives and access needs. Road Management Objectives presently reflect the resource objectives of current direction. In the case of many roads, these objectives will not change materially under this Plan. Where necessary, Road Management Objectives will be modified to reflect the road management needs associated with implementation of the Forest Plan.

Direction for the maintenance of each Forest development road is documented in its Road Management Objectives. The purpose of road maintenance is to provide resource protection, safe access to users (where use is planned), and protection of the road investment. All roads receive basic custodial maintenance to insure adequate drainage. Closed roads may have drainage structures removed and

FOREST MANAGEMENT OBJECTIVES

waterbars or crossditches installed to reduce erosion. Roads remaining open to traffic receive the degree of maintenance dictated by amount and type of planned use, available funding, and maintenance priorities.

The Forest's current road closure program is also documented in the Road Management Objectives. There are two principal components of this program, seasonal closures and long-term closures. Seasonal closures are used during critical periods to prevent harassment of wildlife and to avoid damage to roads and adjacent resources. The proportion of the Forest's road system managed with long-term closures has increased significantly in recent years, especially within the Shelton Cooperative Sustained Yield Unit. This is done to reduce maintenance costs, improve wildlife habitat conditions, and reduce siltation rates.

Road closures may be accomplished either by blocking the road entrance to all traffic, or by gating as authorized in 36 CFR 261. In the case of gated closures, limited administrative traffic and use related to timber sales, contracts, or permits may be allowed. The current maintenance and road closure status of the Forest development road system is as follows:

Maintained for Passenger Car Use - 29 percent of system
 Open Continuously - 27 percent of system
 Seasonally Closed (gated) - 2 percent of system
Maintained for High Clearance Vehicle Use - 48 percent of system
 Open Continuously - 42.5 percent of system
 Seasonally Closed (gated) - 5.5 percent of system
Gated Closure (Long-Term) - 6 percent of system
Blocked to All Traffic - 17 percent of system

During periods of timber haul, some of the roads maintained for high clearance vehicles may be restricted to logging use alone in order to provide for public safety.

The Forest development road system currently consists of 2,594 miles of system road, of which 190 miles are arterials, 570 miles are collectors, and 1,834 miles are local roads. Estimates of new construction mileage that will be needed to meet Forest Plan objectives are displayed in Table IV-17. Note that these projections are estimates only, and that actual mileage constructed will depend on the results of individual project analyses and designs. With the exception of 15 to 20 miles of minor collectors to be built in the first two decades, newly constructed roads will be classified as local.

Table IV-17. Projected Road Construction (Miles per decade)

| Decade | Forest-wide Construction | Construction Within Currently Undeveloped Areas |
|--------|--------------------------|---|
| 1st | 141 | 28 |
| 2nd | 121 | 21 |
| 3rd | 80 | 14 |
| 4th | 59 | 7 |
| 5th | 14 | 0 |
| TOTAL | 415 | 70 |

The pattern of road use management is expected to change gradually over the next 50 years, as fewer roads are maintained for passenger car use and more roads are closed to all use. Estimated mileage and proportion of the total road system within each road management category at the end of the first and fifth decades are shown in Table IV-18. These estimates are based on the following expectations:

FOREST MANAGEMENT OBJECTIVES

1. Continued gradual reduction of the average maintenance level of Forest development roads.
2. A lower average maintenance level for new roads (predominantly local) than for the existing system
3. Increased use of both seasonal and long-term closures.

Table IV-18. Projected Road Use Management

| | Passenger Car, Full Use | | Passenger Car Seasonal | | High Clearance Vehicle, Full use | | High Clearance Vehicle, Seasonal | | Gated Closure | | Blocked to All use | |
|---------|-------------------------|---------|------------------------|---------|----------------------------------|---------|----------------------------------|---------|---------------|---------|--------------------|---------|
| Decade | Miles | Percent | Miles | Percent | Miles | Percent | Miles | Percent | Miles | Percent | Miles | Percent |
| Current | 697 | 27 | 46 | 2 | 1,104 | 42 | 145 | 8 | 160 | 8 | 442 | 17 |
| 1st | 670 | 24 | 47 | 2 | 1,123 | 41 | 158 | 6 | 202 | 7 | 535 | 20 |
| 5th | 615 | 20 | 50 | 2 | 1,157 | 38 | 181 | 6 | 289 | 10 | 717 | 24 |

MINERALS

Land allocations and management prescriptions detailed in this Plan entail varying degrees of restrictions and limitations on mineral development. For example, prescriptions that require complete withdrawal of lands from mineral entry (i.e., Wilderness and Wild Rivers) are most restrictive. Such withdrawals usually preclude mineral entry, and mineral activities will generally be allowed only on mining claims, leases, or permits having valid existing rights established prior to withdrawal. Prescriptions considered to be highly restrictive toward mineral entry include those covering Scenic or Recreational River designations, Primitive and Semi-Primitive recreation allocations, developed recreation sites, and other areas in which protection of particular environmental values is specified. From a mineral entry standpoint, the least restrictive management areas are those allocated to timber management. With the exception of withdrawn areas, mineral activity is generally not restricted beyond reasonable precautions associated with the protection of resource values.

In areas other than those specifically withdrawn from mineral entry, the public has a statutory right to explore public lands for locatable minerals. Upon confirmation of the discovery of a valuable mineral deposit, claimants have the right to mine. Where this right has been established, the Forest Service will approve appropriate operating plans to conduct reasonably necessary mineral activities. The public also has an exclusive right to explore for leasable minerals, and to produce both leasable and salable minerals, if a valid lease or permit is held. Whether leases or permits will be issued depends on whether associated mineral activities would meet management requirements. Specific leasing decisions are to be made when lease proposals are received. The Forest workload in minerals management is relatively low. Approximately 20 cases are processed annually in response to notices of intent, operating plans, new leases, common variety permits, or newly filed mining claims.

Claimants having the right to mine or otherwise produce minerals are guaranteed reasonable access for mining purposes. Operators will, however, be required to protect the resources for which these areas are being managed. As a result, operating costs will be higher in areas with prescriptions considered to be highly restrictive to mineral entry than they might otherwise be. This may reduce interest in exploring these areas for their mineral resources, but would not preclude exploration or development should demand justify the higher costs of operation. The relative restrictiveness of the allocations and resource management goals contained in this Plan is displayed in Table IV-19.

FOREST MANAGEMENT OBJECTIVES

Table IV-19. Restrictions on Mineral Activity
(Areas in thousands of acres)

| | Withdrawn | High | Moderate | Low |
|----------------------|-----------|-------|----------|-------|
| Current Management | 105.5 | 74.5 | 36.7 | 415.6 |
| Proposed Forest Plan | 105.5 | 108.9 | 36.0 | 381.9 |

The effect this Plan will have on availability of potential leasable mineral commodities (essentially limited to oil or gas on this Forest) and potential for hydropower development is similar in nature to the effects discussed above

CULTURAL RESOURCES

In consultation with the State of Washington Office of Archaeology and Historic Preservation (SHPO), the Olympic National Forest will continue to inventory, evaluate, protect, nominate, interpret, and enhance cultural resources. All ground disturbing projects, or other undertakings that may affect cultural resource values, will be surveyed in advance of project implementation to avoid, reduce, or mitigate any loss or damage to these resources. Project-generated survey acreage will range from 2,000 to 5,000 acres per year. In order to develop appropriate evaluation contexts, and to protect resources through a comprehensive approach, additional areas will be surveyed over and above those that are project oriented. A comprehensive approach is essential, as resources would otherwise deteriorate or be lost, destroyed, or damaged if the management approach addressed only those resources that might be affected or impacted by projects. Three to five thousand acres of survey will be programmed each year to satisfy these objectives. Reconnaissance work by cultural resource technicians and professional surveys by archaeologists will be conducted and documented in accordance with Federal regulations, the R-6 CRM Guide, and the Programmatic Memorandum of Understanding between the USDA Forest Service, Pacific Northwest Region, and the Washington State Office of Archaeology and Historic Preservation.

Evaluations of all resources will be made as they are discovered during surveys, in order to avoid or protect resources that may be affected by the implementation of projects. Other known properties and resources will be evaluated as these program elements are budgeted. In the interim, any properties will be managed and protected as eligible for the National Register of Historic Places, so that the features that give them value will not be diminished or lost.

Sites and properties eligible for the National Register of Historic Places will be nominated commensurate with funding for the program element. Every opportunity will be taken to accomplish the task through volunteer efforts, or through use of the open-ended thematic nomination process of the Programmatic Agreement for Management of Depression-Era Administrative Structures. This will reduce costs and increase the efficiency of use of available funds. Enhancement and interpretation efforts will be programmed for specific National Register sites and themes, in order to promote the enjoyment of these resources by the general public. Many other benefits can accrue from such efforts, such as emphasizing the importance of this resource, sharing educational, scientific, and research information, and generating economic opportunities for resource-dependent communities on the Olympic Peninsula. Enhancement and interpretation efforts offer opportunities to coordinate with local Indian tribes, historical societies, museums, academic institutions, and various professional individuals, organizations, associations, and societies. As specific management plans are developed, they will include needed rehabilitation, stabilization, or enhancement items. Monitoring of sites or properties will occur regularly to assure that degradation of values does not occur, and that preventive maintenance is appropriately scheduled.

FOREST MANAGEMENT OBJECTIVES

Incorporated in cultural resource management will be measures to recognize and protect values held by the American Indian community. Cultural, ceremonial, traditional, and religious uses, along with statutory treaty rights, must receive appropriate consideration. Chapters III and IV of the FEIS speak at length to these issues. Chapters IV and V of the Forest Plan speak to goals, management standards and guidelines, and monitoring efforts that will direct the cultural resource management program.

LANDOWNERSHIP

Landownership will be adjusted in accordance with the Olympic National Forest Landownership Adjustment Plan of 1980. Adjustments will be made to facilitate accomplishment of Forest Plan resource management objectives, to consolidate ownership, and to increase the effectiveness and efficiency of general land management. It is intended that all the presently planned exchange activity be completed by the end of the first ten year period following Plan approval. Additional exchange activity beyond that period will be considered as needs and opportunities are identified. The ten-year exchange plan is shown in Appendix A. Acquisitions by purchase are presently not planned, but some activity may develop on a "willing seller" basis for desirable acquisitions in special management areas.

The Small Tracts Act of January 12, 1983 (P.L. 97-465) provides a means of resolving encroachment cases that have occurred through no fault of the adjacent landowner. The Forest is aware of three cases that may qualify under the Small Tracts Act. They are planned for resolution in 1991 and 1992. Other cases will be programmed as the need arises.

In association with resource management activities, approximately 20 to 25 miles of land line location work will be needed annually. Toward the end of the second five-year period of the Plan, emphasis will shift from land line establishment to retracement and maintenance (see Appendix A for schedules).

STRUCTURES AND UTILITY CORRIDORS

There are many structures, facilities and utility corridors on the Forest that provide benefits which serve a broad segment of the general public. Many existing powerlines or water transmission lines contribute to, or have the potential to contribute to, the operation or formation of a utility district, association, or municipal system. Examples of such systems or operations that are authorized uses of National Forest land are:

Power Transmission Lines:

Bonneville Power Administration: Shelton-Fairmont, Fairmont-Port Angeles, and Port Angeles-Sappho.

County P.U.D. Districts: Mason, Jefferson, Clallam, and Grays Harbor Counties.

Water Transmission Lines:

Port Townsend Municipal Water System
Black Diamond Water District
Evergreen Land and Water Company
Neilton Water Association
Lake Quinault Water Association

DESIRED FUTURE CONDITION OF THE FOREST

Telephone Transmission Lines:

U S. West Communications
Peninsula Telephone and Telegraph

The foregoing types of uses or agreements are considered to be long-term commitments of the Forest. Approval decisions were made considering both environmental concerns and the long-term public benefits that would accrue. Because of their nature, it was not practical to designate these utility corridors on Forest Plan maps. Therefore, they are included by reference, and locations, widths, and standards can be found in Forest case files.

One goal of structure and utility corridor management is to coordinate with County Health Departments to avoid single use water system development that leads to inefficient and ineffective encumbrance of National Forest land. In many instances, such systems do not meet Safe Drinking Water Act standards, especially when they are expanded to include service to multiple families. Benefits to broad segments of the public and formation of local Sewer and Water Districts to effectively provide needed services will receive priority consideration. Single-user facilities and utility lines will usually be considered for interim periods only, and will generally be discouraged or phased out over time.

Electronic Sites:

The following electronic sites have been in use for many years. They provide an administrative and public benefit that, because of location and design, have caused no conflict with other resource values. The Forest's commitment to use of these electronic sites will be continued.

Buck Mountain, Quilcene District
Neilton Point, Quinault District
North Point, Soleduck District

DESIRED FUTURE CONDITION OF THE FOREST

It is likely to be several decades before effects of management direction contained in this Plan are apparent throughout the Forest. The following descriptions are written to represent likely conditions ten years and fifty years into the future. The descriptions presented here assume this Plan will be implemented and direction will remain constant throughout this 50-year period. However, the direction in this Plan will be reviewed on a 10-year cycle or at least every 15 years, and, when appropriate, direction will be changed or modified through future Plans.

THE FOREST IN TEN YEARS

By the end of the first decade, changes will have been made to implement management direction designed to address public issues and management concerns. Modifications will have included changes in land allocation and management intensity to provide different levels of resource protection and outputs.

DESIRED FUTURE CONDITION OF THE FOREST

SCENERY

The demand for scenic quality will increase on the Forest, especially within key viewsheds that involve high use recreation areas. The appearance of the landscapes within 15 of the Forest's 20 sensitive viewsheds will range from natural appearing to a slightly altered appearance. The other five viewsheds will have a moderately altered appearance.

In viewsheds where the Existing Visual Condition does not meet the established Visual Quality Objectives, there will be an intensified effort to rehabilitate negative visual conditions and move the area closer to the desired level of scenic quality.

The Forest will be managing several scenic byways to provide attractive travel routes for visitors.

New technology will be utilized to manage difficult terrain and dense stands within key viewsheds in order to meet Visual Quality Objectives while implementing silvicultural prescriptions.

In some areas, other ownerships adjacent to National Forest viewsheds will have received extensive timber harvesting. Such areas are not likely to reflect scenic quality considerations.

RECREATION

The Forest will continue to provide a range of recreation opportunities and settings all along the Recreation Opportunity Spectrum, with the exception of the Urban ROS class. New opportunities will exist in the Rural, Roaded Natural, and Roaded Modified ROS classes, but opportunities in the Primitive and Semi-Primitive classes outside Wilderness will be limited.

The Forest will provide the developed recreation sites and facilities needed to meet expected demand. The more heavily used sites and facilities will be reconstructed, and several new sites will be developed. Approximately 950 PAOT of reconstruction and 2,300 PAOT of new site construction will have occurred by the end of the decade. Most sites will have at least some newly reconstructed barrier-free facilities. User fees will be charged at most campgrounds, and will be higher than in the previous ten years.

The vegetation within developed sites will consist of healthy, attractive stands that are free from hazard trees and unwanted vegetation. Vegetation management within developed sites will be consistent with approved vegetative management schedules. These will be aimed at maintaining or enhancing desirable characteristics and user safety.

Nonwilderness dispersed unroaded recreation opportunities will bear high demand and will create unique management challenges. Use within popular unroaded recreation areas will increase. Overcrowding and user conflicts will become more common. There will be a greater need for law enforcement in these areas. Some visitors will experience decreased satisfaction due to overcrowding, user conflicts, and increased law enforcement. Such visitors will seek areas in which these situations do not exist. Visitor use will therefore increase in the less frequently used unroaded recreation areas on the Forest.

Demand for winter use will increase. A few undeveloped snow-play areas and facilities will be developed to help meet this demand and provide for user safety.

Recreation management will involve partnerships with other agencies, user groups, and private enterprise in developing and maintaining recreation facilities, testing new ideas, providing opportunities for special needs, and providing funding.

DESIRED FUTURE CONDITION OF THE FOREST

The Forest will maintain and enhance existing interpretive facilities. Educational programs will have been added to help increase visitor awareness and understanding of natural and cultural resources and their management.

WILDERNESS

The total acreage of Wilderness (88,265 acres) will not change during the decade.

Demand for Wilderness recreation opportunities will continue to increase on the Forest. Some Wilderness visitors will experience decreased satisfaction with high levels of use, increased law enforcement, and/or the management techniques needed to implement the “Limits of Acceptable Change” (LAC) process.

Increases in Wilderness use will result in the need for management actions to reduce unacceptable user impacts. Management actions will be more direct than at present, with use of permits and limitations on the number of visitors allowed within a given area being more common.

In some areas within Wildernesses in which the impacts of use are currently considered unacceptable, rehabilitation and improvement due to implementation of the results of the LAC process will begin to show. Although a decade is barely sufficient time to notice substantial improvement, a general upward trend in the quality of the Wilderness environment should be apparent.

Wilderness user education programs will continue, and will be expanded. These will be aimed at educating the Wilderness visitor regarding the “minimum impact” concept, the Limits of Acceptable Change process, and Wilderness values.

CULTURAL RESOURCES

By the end of the first decade, a formal survey design strategy will be documented, in place, and routinely used in all survey and reconnaissance work

The Geographic Information System (GIS) will be a functional tool for identifying sensitive areas and areas of high probability for location of cultural resources. Survey and reconnaissance cost-effectiveness will be significantly improved.

AMERICAN INDIANS

All Olympic National Forest line and staff officers and first line supervisors will have completed training and awareness programs covering the treaties negotiated between the United States and Olympic Peninsula Indian tribes.

Accomplishments are documented concerning joint efforts of the tribes and the Forest Service to locate and protect important religious, ceremonial, and traditional sites or uses.

Key tribal and Forest Service contact persons have been designated, and sufficient contact is made so that everyone is known on a first-name basis. Efforts toward, and effectiveness of, contacts by Forest Service employees are strongly emphasized.

LANDS

Standardized collection agreements and rate schedules have become a routine tool for processing special

DESIRED FUTURE CONDITION OF THE FOREST

use applications. Non-refundable special use application filing fees are a mandatory prerequisite for applications to be processed.

Permittee self-inspection reports and documentation are utilized to identify deficiencies and to prepare permittee action plans for compliance, correction, or changes.

OLD-GROWTH

The Forest will still have an extensive acreage in old-growth, with roughly 245,000 acres remaining at the end of the decade. This represents a decrease of approximately 22,000 acres from the present acreage. The areas in which the decrease will be most noticeable will be on the edges of presently unroaded areas and within areas that have traditionally been managed for timber. Spotted owl habitat areas (SOHAs) will provide large blocks of old-growth scattered across the Forest. Pileated woodpecker and pine marten areas will also be providing stands of old-growth distributed among managed timber stands. Riparian areas and major travel corridors should still have substantial old-growth components.

TIMBER HARVEST AREAS

The goal of producing timber on a sustained-yield basis will have been implemented on the Forest. With the exception of small parts of some of the previously unroaded areas, the areas within which harvest will occur will be much the same as those which have been the site of harvest activity in the past. There will be less clearcutting within riparian areas, and more of the annual volume will be coming from commercial thinnings and smaller diameter material than has occurred in the past. Silvicultural prescriptions will sometimes call for retaining residual old-growth stand components in an effort to maintain old-growth characteristics on the site after harvest.

The total acreage in created openings will be approximately half that which occurs at present. Fewer openings will have been burned, with the result that the Forest will look much 'greener in many areas. More standing snags and reserved trees (both single and in clumps) will break up the continuity of the "clearcut" look.

Fuelwood will be available from the Forest, but it will be somewhat harder to find. Travel times to fuelwood sources will have increased, and more people will be looking for available fuelwood.

ROAD AND TRAIL SYSTEMS

The emphasis of road system management will change from construction to reconstruction, maintenance, and traffic management. Many roads will be at least seasonally closed for wildlife and other resource concerns. An estimated 141 miles of new road will be added to the system by the end of the decade, with most of this mileage on local roads accessing timber harvest areas. The mileage of closed roads will increase by approximately 135 miles, so there will be little net change in system mileage open for travel.

The total mileage of trails will have increased, with an increase in facilities available for off-road vehicles. Trails will be well maintained, and most of the existing substandard trails will have been reconstructed. Trail use by all user types will increase. The season of use will extend into the winter months in low elevation areas.

SOIL AND WATER

The condition of vegetation in riparian areas will be less disturbed. There will be less clearcutting in riparian areas. Implementation of Forest-wide Standards and Guidelines will maintain or improve water

DESIRED FUTURE CONDITION OF THE FOREST

quality and provide the structural components necessary for diverse, high quality riparian habitat.

Frequent and well distributed complexes of large organic debris interact over time to create a diversity of aquatic habitat types. Riparian areas associated with Class I and II streams will be characterized by vegetation conditions that emphasize maintaining existing vegetation. Riparian areas along many Class III and IV streams will have been convened to early seral stages using management practices that maintain channel stability and water quality.

The Forest will require use of timber harvest systems that minimize soil displacement and soil compaction. More emphasis will be placed on surface water management and erosion control to keep soils in place and prevent erosion so as to maintain soil productivity.

Sediment levels in major streams will have significantly decreased in comparison to current conditions. Summer water temperatures throughout the Forest will be well within the tolerance levels of aquatic organisms historically found in the streams.

Demands on the water resource as a potential source of energy (hydropower) will continue. Projects that are constructed will include restrictions or mitigation measures to protect soil, water, and other resources.

FISH AND WILDLIFE HABITAT

Anadromous fish production will have increased by as much as 15 percent as a result of both reduced sedimentation of streamcourses and habitat enhancement projects designed to improve the balance between spawning and rearing habitat. Total recreational and commercial fish catch will have increased, although greater demand for recreational fishing may result in reduced success rates for individual users.

Wildlife species utilizing streamside areas will be benefited by the standards and guidelines covering riparian area management. Riparian habitat conditions will have begun to approach a highly varied, well-balanced mix of habitat types. Old-growth will be well represented as a component of riparian habitat.

Increased levels of retention of snags and down woody material within timber harvest areas will aid in maintaining well-distributed habitat for species dependent upon these timber stand components. Populations of these species will be well above the minimums needed to assure viability.

Deer and elk populations will remain relatively stable. Hunting may be more challenging (but of higher quality) because more roads will be closed during hunting season. Increased demand for hunting may lead to reduced success rates for individual hunters.

Habitat for northern spotted owls and other species dependent on old-growth or mature forest conditions will be available at a level close to that which exists today. Over 90 percent of the current acreage of old-growth habitat will remain. Habitat availability will be well above the level considered necessary to maintain viable populations of the relevant indicator species, with habitat areas well-distributed throughout the Forest.

UNROADED AREAS

Approximately 71,500 acres of the currently unroaded areas will remain at the end of the first decade. This is over 80 percent of the area presently classified as unroaded.

DESIRED FUTURE CONDITION OF THE FOREST

Unroaded areas outside of Wilderness will not be able to accommodate the total demand for Primitive and Semi-Primitive recreation. Unroaded areas which have historically received little use will become more valuable for undeveloped recreation as the gap between demand and availability widens.

Overcrowding, user conflicts, and law enforcement activities in the more popular undeveloped areas will tend to drive some undeveloped recreation visitors to seek other, less crowded unroaded areas.

WILD AND SCENIC RIVERS

Although only three of the rivers on the Peninsula were recommended for Wild and Scenic designation, there should not be much change in the corridors of most rivers. The River Corridor allocation should have provided substantial protection for the major rivers of the Forest.

LOCAL COMMUNITIES

Opportunities for the Forest to help enhance the vitality of surrounding communities will occur through a Regional initiative called the Pacific Northwest Strategy. It is envisioned that the Pacific Northwest Strategy will be a new focus of operation for many people, one that empowers Forest Service people and local citizens to look and work beyond the traditional boundaries. At the same time, it reaffirms and emphasizes working with other government agencies, local businesses, and the communities themselves in a spirit of interdependency and cooperation that has always existed at the local Ranger District level. As the Strategy becomes an integral part of doing business, its central focus will be to foster and enhance communication, cooperation, and partnerships.

THE FOREST IN FIFTY YEARS

By the end of the fifth decade, results of management direction implemented under this Plan will be more apparent.

SCENERY

The demand for scenic quality will be high and continue to increase, especially in viewsheds involving heavily used recreation areas. The appearance of viewshed landscapes will be attractive and diverse. Seven of the 20 sensitive viewsheds will have a natural appearance, and the remaining 13 will have a slightly altered appearance.

In viewsheds where existing visual condition did not meet established Visual Quality Objectives, the landscape will be well on its way toward reaching an undisturbed appearance and show substantial progress toward the desired level of visual quality.

The Forest will be managing several Scenic Byways. These will have become established as popular and heavily-used routes for scenic drives.

Development of new technology will have continued, further reducing the cost and difficulty of managing steep terrain and dense stands. Visual and silvicultural prescriptions will be fully compatible in such areas, and Visual Quality Objectives will be met without difficulty.

Adjacent landowners may have become more sensitive to scenic values, but it is likely that lands adjacent to National Forest land will still show major visual contrasts in some viewsheds.

DESIRED FUTURE CONDITION OF THE FOREST

RECREATION

The Forest will continue to provide a range of recreation opportunities and settings all along the Recreation Opportunity Spectrum. Opportunities in the Rural, Roaded Natural, and Roaded Modified ROS classes will have continued to increase, while opportunities in the Semi-Primitive and Primitive classes will have decreased to their ultimate level.

The Forest will continue to provide the developed recreation sites and facilities needed to meet expected demand. Most of the heavily used sites and facilities will have been reconstructed, and several new sites will have been developed. Approximately 3,430 FAOT of reconstruction and 4,400 PAOT of new site construction will have occurred by the end of the next fifty years. Most facilities will provide barrier-free access. User fees will be charged at all but a few rustic campgrounds, and these fees will have continued to increase.

Vegetative management schedules for developed sites will have been implemented, producing attractive stands that are free of hazards. Some sites will contain stands that are diverse in age and size, while others will have stands characterized by more uniform sizes and ages.

Nonwilderness dispersed unroaded recreation will remain in high demand, and use of areas providing this recreation opportunity will have continued to increase. At the same time, the area falling within the Primitive and Semi-Primitive ROS classes will have been reduced to its ultimate acreage. Users will probably have become accustomed to high user density, use management, and high levels of law enforcement activity.

Winter recreation use will have increased, and there will be several areas developed on the Forest to meet the demand for snow-play activities

Partnerships will be an effective and common method of managing a dynamic recreation program. The public sector will be actively involved in operating and maintaining recreation sites and facilities.

The Forest's interpretive and educational facilities and programs will have accomplished management goals, and will continue to provide the visitor with the information needed to ensure an enjoyable and safe visit to the Forest. Increasing the visitor's understanding and awareness of natural and cultural resources and their management will continue to be a high priority.

WILDERNESS

The acreage of designated Wilderness is likely to be at or very close to the current designation of 88,265 acres. Some potential additions may have been made in response to changing priorities or demands for Forest resources. Such additions would probably have been relatively small.

Use will continue to increase, with the most accessible areas continuing to show the effects of high use. Limitations and regulations will play a major role in managing the Wilderness and in implementing the results of the Limits of Acceptable Change process. Overall, users will probably have accepted the LAG program and will be committed to it.

In some areas within Wildernesses in which the impacts of use are currently considered unacceptable, rehabilitation and improvement due to implementation of the results of the LAG process will have taken effect. Substantial improvements in the quality of the Wilderness environment should be apparent in these areas.

User education programs have proven effective and will continue to be conducted. They will have

DESIRED FUTURE CONDITION OF THE FOREST

provided Wilderness users with the type of information that has made them minimum-impact visitors. These users will be committed to the Limits of Acceptable Change process. Visitors will have the opportunity to apply the techniques and concepts of conscientious Wilderness use during their visits.

There will be limitations on the size of parties entering Wildernesses. Some high use un-developed recreation areas, in both the Forest and Park, will require an entrance fee.

CULTURAL RESOURCES

The cultural resource inventory will be essentially complete, although survey and reconnaissance will continue. The cultural resources of the Forest will continue to be well-protected.

AMERICAN INDIANS

Cooperative efforts to locate and protect important religious, ceremonial, or traditional sites or uses have resulted in a thorough inventory of such areas. Protection measures have become a routine component of the conduct of Forest activities.

LANDS

See "The Forest in Ten Years." The same conditions will apply in fifty years.

OLD-GROWTH

There will be noticeably fewer acres of old-growth than in the previous 50 years. Approximately 82,000 acres of old-growth will have been harvested since 1990. The retention of old-growth in SOHAs, pileated woodpecker and pine marten areas, river corridors, undeveloped unroaded recreation areas, Wilderness, and other allocations will, however, provide a significant old-growth component within the Forest's vegetative structure. Approximately 185,000 acres of old-growth will remain on the Forest. A person still will not have to travel very far to get into an old-growth stand, although these stands will often be somewhat remote. The removal of old-growth allocated to timber harvest prescriptions will be close to complete, and almost all of the old-growth stands still present fifty years from now will be retained permanently.

TIMBER HARVEST AREAS

Evidence of intensive management for timber production and other forest products will be apparent throughout the areas to be managed for this purpose. The forest within timber management areas will be approaching an even distribution of tree sizes, from seedlings to mature sawtimber. The second cutting cycle will be well under way on National Forest land in the Shelton CSYU. There will be much more commercial thinning activity, but the primary means of regenerating timber stands may still be clearcutting. Many of the extremely overstocked, stagnated (doghair) stands will have been converted to faster-growing timber stands. The effects of silvicultural prescriptions which retain some old-growth characteristics on the site after harvest will be noticeable across the Forest.

Fuelwood gathering for personal use will still be occurring, but demand will have decreased. Available fuelwood will be difficult to find and much smaller than it used to be. Machinery used to harvest and manufacture forest products will leave much less residual material.

ROAD AND TRAIL SYSTEMS

The annual mileage of new road construction will be greatly decreased. Many roads will be closed, at

DESIRED FUTURE CONDITION OF THE FOREST

least seasonally, to reduce maintenance costs and minimize disturbance to wildlife. The Forest's road system will be essentially complete, with a total of just over 3,000 miles of forest development roads. Approximately one-third of these will be closed to travel at any given time, up from the 23 percent closure level of today. Road system expansion (415 miles) and road closure expansion (just over 400 miles) will balance each other almost exactly, so there will be little net change from the present in open road miles.

Trail mileage will have increased, and there will be a range of user opportunities consistent with demand. Several off-road vehicle facilities will have been developed, and these should not conflict with either resources or other recreation uses. Winter trail use will have continued to increase.

SOIL AND WATER

The demand for water will increase, along with growing concern for clean water. Watershed conditions on National Forest land should be improved over current conditions, since there will be less soil erosion and sediment entering streams. Also, concern will remain about management practices and their possible long-term effects, primarily those associated with timber harvest and related road construction. There will be increased emphasis on soil productivity, and the Forest will be requiring the use of logging systems and techniques that minimize soil degradation. Most roads needed to manage the Forest will be in place, and the amount of soil displacement (sediment) and erosion from construction will decrease.

Although trees will still be removed from riparian areas, the amount of clearcutting will be reduced and the vegetation not as disturbed as it used to be. The overall size of trees in the riparian areas will be larger, especially on the southern part of Hood Canal Ranger District.

Demand for hydropower will have increased from twentieth century levels, and construction of some projects will occur. The technology for hydropower development will progress to the point where it will no longer pose a serious threat to anadromous fish, and projects will be constructed where practical.

FISH AND WILDLIFE HABITAT

Anadromous fish production will have increased to as much as 25 percent above current levels as a result of both reduced sedimentation of streamcourses and habitat enhancement projects. The balance between spawning and rearing habitat will be as close to optimal as can be achieved through an ongoing program of enhancement and maintenance activities. Total recreational and commercial fish catch will have increased substantially, although continued growth in demand for recreational fishing may result in reduced success rates for individual users.

Wildlife species utilizing streamside areas will be benefitted by the standards and guidelines covering riparian area management. Riparian habitat conditions will have reached a highly varied, well-balanced mix of habitat types. Old-growth will continue to be well represented as a component of riparian habitat.

Increased levels of retention of snags and down woody material within timber harvest areas will aid in maintaining well-distributed habitat for species dependent upon these timber stand components. Populations of these species will be well above the minimums needed to assure viability.

Deer and elk populations will remain relatively stable, although slightly below current levels. Continued expansion of the road closure program will have served to enhance the challenge and quality of the hunting experience, increased demand for hunting may have resulted in substantially reduced success rates for individual hunters.

Habitat for northern spotted owls and other species dependent on old-growth or mature forest conditions

DESIRED FUTURE CONDITION OF THE FOREST

will continue to be available at a level only moderately reduced from that which exists today. Almost 70 percent at the current acreage of old-growth habitat will remain. Habitat availability will be well above the level considered necessary to maintain viable populations of the relevant indicator species. Habitat areas will continue to be well-distributed throughout the Forest, although the spacing of these within timber management areas may involve distances that are close to the maximum considered acceptable under current Management Requirement specifications.

UNROADED AREAS

Approximately 57,500 acres of the currently unroaded areas will remain at the end of the fifth decade. This is approximately two-thirds of the area presently classified as unroaded.

Unroaded areas outside of Wilderness will not be able to accommodate the total demand for Primitive and Semi-Primitive recreation, which will have increased while acreage providing such recreation opportunities has decreased. Virtually all of the remaining unroaded areas will be used at a level at or above their capacity to provide high quality experiences. By and large, users will have become accustomed to high use levels, management of use, and law enforcement activities in the more popular unroaded areas.

WILD AND SCENIC RIVERS

The Gray Wolf, Dungeness, and Duckabush Rivers should have received Congressional designation as Wild and Scenic Rivers to be managed by the Forest Service. Specific management plans will have been developed and will be implemented within the river corridors. Most of the other significant rivers on the Forest will have been managed under the River Corridor prescription, and will therefore have maintained most of their unique natural characteristics.

LOCAL COMMUNITIES

Each community will have capitalized on its uniqueness and involved its citizens in the development of a desired future. The activities associated with the Pacific Northwest Strategy will continue to support the goals and plans of resource-dependent communities.

FOREST-WIDE STANDARDS AND GUIDELINES

These Forest-wide standards and guidelines provide the limits within which management practices will be implemented in achieving planned objectives. They supplement, but do not replace, direction from the Regional Guide for the Pacific Northwest Region and from Forest Service Manuals and Handbooks.

It will be helpful to remember the following use of specific words, the “helping verbs,” to convey intent of direction expressed in standards and guidelines in this section. These same words and intent are also used in expressing direction for the management area prescriptions.

HELPING VERBS

must, shall

should, ought

may, can

will

DEGREE OF RESTRICTION

Action is mandatory.

Action is required, unless reason exists for not taking action (as identified in environmental assessments).

Action is optional.

Is not restrictive; applies only to a statement of future condition or an expression of time. Do not use in place of shall.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

A. Recreation

1. Management activities should meet Visual Quality Objectives. Note that in A2 (Scenic) areas VQOs shall be met.
2. Management activities should be compatible with Recreation Opportunity Spectrum (ROS) class criteria within and adjacent to each management prescription.
3. Interpretive activities should be aimed at meeting one or more of the following objectives:
 - a. Assist resource managers in implementing and accomplishing resource management objectives.
 - b. Encourage Forest visitors to increase their awareness and understanding of resource management practices.
 - c. Increase the visitor’s understanding of and orientation to the resources and features of the Forest.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

- d. Provide opportunities for enhancement of the Forest visitors recreation experience on the Forest.
4. The Forest Service's Recreation Strategy should be implemented in cooperation with other recreation providers in the Olympic sub-region or other appropriate area.

B. Cultural Resource Management

The Forest should provide for a comprehensive program to inventory, evaluate, nominate to the National Register, protect, enhance, interpret, and monitor cultural resources. A comprehensive program shall recognize management opportunities and partnerships that we can share with adjacent landowners, other Federal agencies, State and local governments, and others. Examples are shared databases, interpretive opportunities, skills and technical knowledge, development of research designs, survey strategies, and training.

1. Inventory

- a. The completed cultural resource overview of the Forest shall be maintained and updated. The overview should be utilized to summarize previously-recorded cultural resource information for the Forest; provide a framework for evaluating cultural resources identified through the inventory process; aid in the development of a research design to guide future surveys, inventories, and scientific investigations; and identify opportunities for interpretation of a range of cultural resource properties.
- b. Cultural resource inventories shall be conducted on areas where initial ground-disturbing activities are scheduled. This phase of inventory shall be emphasized to ensure discovery and protection of locatable cultural resources in advance of implementing project activities.
- c. Inventories of areas not affected by projects should be scheduled and systematically programmed in order to complete a comprehensive Forest-wide inventory and evaluation of cultural resources.
- d. A survey design and cultural resource inventory plan should be completed to guide all inventory activities to maximize efficiency, and prescribe types and intensities of surveys by geographic areas.
- e. Results of project level cultural resource inventories shall be documented through environmental analysis for the project. Cultural resource consultation shall be documented according to the current Memorandum of Understanding between the Washington State Office of Archaeology and Historic Preservation (SHPO) and the USDA Forest Service, Pacific Northwest Region.
- f. An inventory site list of cultural resources should be updated regularly to reflect additions to the database. The backlog of sites that lack complete records should be reduced through a systematic program of recordation and updating.
- g. Post-project monitoring techniques and results should be utilized to help locate and discover cultural resources, and to further develop survey design strategies and predictive modeling for future ground-disturbing project activities.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

2. Evaluation and Assessment

- a. The significance of inventoried sites shall be evaluated by applying the criteria for eligibility to the National Register of Historic Places. Sites may be treated as individual properties, thematic groups, or historic districts. Priority should be given to those properties that may be affected by project activities. A plan should be developed to evaluate all other cultural resources through cost-effective means as the Forest-wide inventory nears completion.
- b. Cultural resources that meet the appropriate criteria for eligibility to the National Register of Historic Places shall be nominated.
- c. The effects of all Forest Service undertakings on significant cultural resources shall be considered, and measures shall be taken to avoid or mitigate any adverse effects. An evaluation and assessment of effects shall be conducted prior to maintenance, rehabilitation, and moving or removal of any structure that may have cultural value. Included in this category shall be any privately-owned structures located on National Forest lands under special use authority. Evaluation and assessments of effects shall be performed in consultation with the State Historic Preservation Officer (SHPO) if necessary, the Advisory Council on Historic Preservation should also be consulted.

3. Protection and Enhancement

- a. Until proper evaluation occurs, all known cultural resource properties shall be protected
- b. Project management plans should be developed for all sites eligible and on the National Register of Historic Places Primary emphasis should focus on protection of the site and maintaining the integrity of the qualities and characteristics that make the property eligible for the National Register. Other considerations in management plans include coordination with American Indians and identifying compatible or adaptive uses such as administrative use or appropriate public and private use authorized by special use permit, including provisions for maintenance agreements.
- c. Programmatic Memoranda of Agreement and/or project management plans (in consultation with the SHPO and Advisory Council) should be developed for the protection of classes of prehistoric and historic resource properties found on National Forest land. Examples include mining improvements, railroad logging properties, prehistoric lithic scatters, stripped cedar trees, and historical properties under special use permit
- d. Every cultural resource project management plan should address possible opportunities for educational/interpretive programs.
- e. Opportunities should be provided for scholarly/scientific study of cultural resource sites through cooperative agreements, study permits, and contracts with qualified institutions, organizations, and individuals.
- f. In consultation with the Washington SHPO and, if necessary, the Advisory Council, the Forest shall develop measures to protect significant sites from adverse effects due to general Forest resource management activities or management practices. These measures may range from complete avoidance of the site and corresponding protection of its environmental setting, to mitigation procedures, such as data recovery or recordation to Historic American Buildings Survey standards.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

- g. Confidentiality of cultural resource site locations shall be maintained as required-by the National Historic Preservation Act.
- h. National Register eligible cultural and historic resources shall be protected from degradation due to public use and natural deterioration. Protection activities may include, but are not limited to, scientific study and collection (as outlined in a data recovery plan), the use of fences and barriers, proper use or removal of signs, stabilization techniques, closure orders, patrol and site monitoring, maintaining site anonymity, and gaining public understanding and support through education.
- i. Decisions on the maintenance level for eligible historic structures should be based on an analysis of utility, interpretive value, public interest, existing site or area allocation, funding sources, and existing agreements. Eligible sites shall be maintained, or the resultant adverse effect shall be mitigated.
- j. Religious sites and resources identified under the American Indian Religious Freedom Act shall be managed in consultation with affected tribes.

C. Wilderness

Wilderness boundaries shall be marked prior to implementing projects next to Wildernesses that will affect Wilderness values.

D. Wildlife, Fish, and Threatened, Endangered, and Sensitive Species

1. Threatened, Endangered, and Sensitive Species

- a. Consultation shall be initiated with the USDI Fish and Wildlife Service whenever an action may affect a Federally-listed threatened or endangered species. Protection of essential habitat for sensitive species should be coordinated with the State.
- b. In all areas where threatened, endangered, or sensitive species of plants or animals may occur, surveys shall be performed prior to any major project design if a threatened, endangered, or sensitive species is found, a biological evaluation shall be performed to determine the effect of the project on the species.
- c. Federally listed endangered and threatened species shall be identified, inventoried, and managed in cooperation with the USDI Fish and Wildlife Service. Management of sensitive species should be coordinated with the Washington Department of Wildlife (animals), and Washington Department of Natural Resources (plants).
- d. Where management activities or other agents threaten the continued viability of threatened, endangered, or sensitive plants, the threatening activity or agent shall be controlled, removed, or terminated.

- 2. Bridges, culverts, and fords that cross anadromous fish-bearing streams shall provide unobstructed passage for adult and juvenile anadromous fish. Road crossings of resident trout streams should also maintain or improve fish passage.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

3. The Statewide Comprehensive Wildlife and Fisheries Management Plan shall be continued and updated, at least annually, in cooperation with the State of Washington Departments of Fisheries and Wildlife.
4. Road, trail, and area closures and restrictions of motorized use may be employed to reduce disturbance to unique, uncommon, or vulnerable habitats, such as rutting and calving areas, nesting sites, and fish spawning/holding areas
5. Fish stocking of lakes and streams may occur as directed in the Olympic National Forest's "High Lake and Stream Survey Report, Parts 1 and 2" and/or the Memoranda of Understanding with the Washington Department of Wildlife, the Department of Fisheries, and the Treaty tribes, except as limited by Wilderness management.
6. Wildlife Trees

Wildlife trees shall be managed at a level necessary to meet the Regional policy of maintaining effective populations of primary cavity excavators in excess of 40 percent of their potential population levels. Dead and defective tree habitat should be managed by units such as the Integrated Resource Analysis Areas (IRAAs), where specific objectives can be established and monitored. The following guidelines apply:

- a. Snag densities needed to meet Management Requirement specifications for cavity excavators should be provided within land areas that are generally no larger than normal harvest unit size (60 acres).
- b. A snag recruitment model should be used to determine the number of green trees necessary to meet the snag objectives. This will be determined on a case-by-case basis. Planning analysis indicates that an average of two green trees per acre greater than 15 inch DBH and 1.7 green trees per acre greater than 19 inch DBH should be left in regeneration harvest units and other activity areas where vegetative manipulation occurs. This is an average which may vary based on site specific conditions, including the number of existing snags available in the area. If larger trees are left, fewer will be necessary
- c. In even-aged management areas, wildlife trees should be managed in patches wherever existing distribution of snags and live trees allows. In other areas, either patches or more evenly distributed snags are acceptable.
- d. Douglas-fir and western redcedar are the preferred species for snags and reserve trees. When trees of the desired species are not available, other conifers representing the average character for the stand should be retained.
- e. Dead standing trees which meet State and Forest safety requirements should be left in timber harvest areas or adjacent to roads.
- f. In addition to snags and reserve green trees, an average of at least three down trees per acre should be left evenly distributed in timber harvest and other activity areas. Down material should be at least 21 inches in diameter at the large end, and 16 feet long if material of this desired condition is not available, the largest that is present will be left.
- g. Snags, reserve trees, and down logs should be protected from harvest and fuel treatment operations, firewood cutting, and future salvage activities.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

7. Fish habitat capability within a drainage should be maintained at no less than the existing level.
8. Recreational hunting or trapping regulated by the Washington Department of Wildlife should be the preferred method of controlling animal populations.
9. Potential actions involving nonindigenous fish and game (e.g. mountain goats) shall be coordinated with the Washington State Departments of Wildlife and Fisheries. Use environmental analysis when appropriate.
10. Wildlife habitats which are limited on the Forest, including marshes, wetlands, cliffs, taluses, lakes, tidal lands, and areas of colony nesting, shall be maintained or enhanced so that their habitat characteristics are not lost.
11. Nesting sites of osprey and blue herons should be protected by avoiding planned activity within 500 feet of the nest during nesting season. The size of the protection area and mitigative management measures may vary, and should be determined on a case-by-case basis.
12. Impact on habitat for the management indicator species groups should be determined for each project in terms of habitat quality, quantity, and distribution.

13. Peregrine Falcon Habitat

Peregrine falcon habitat shall be protected in compliance with the objectives of the Pacific Coast Recovery Plan for the American Peregrine Falcon (USDI Fish and Wildlife Service, 1982). Any nest found shall be protected; associated habitat (such as feeding areas) shall be protected and enhanced, if necessary.

14. Northern Spotted Owl Habitat

The following standards and guidelines shall be used when spoiled owl nests are found outside of the spotted owl habitat network.

- a. Areas proposed for project activity which contain habitat suitable for spotted owls shall be surveyed according to current standard Forest Service inventory procedures.
- b. Any spotted owl nest found outside of the spotted owl habitat network shall be protected during the year that it is active. The level of protection shall be determined through an interdisciplinary process based on the site-specific needs of the nest. The nest site shall be surveyed for 2 years following the year in which it was active to assure that it is no longer being used before any project activity is implemented.

15. Elk and Deer Winter Range

The following is interim planning direction. During Plan implementation, the Forest will be developing more site-specific direction for each herd unit. This direction will be developed using Habitat Effectiveness Indices (HEI) to assess winter range needs on a herd-by-herd basis. The information required for such analysis is incomplete at the present time and is not available for this Plan.

- a. Within the winter range, there are some areas which are considered to be necessary for big game winter survival. This would be expected to be an area substantially less than the

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

total area of winter range On those lands identified as necessary for elk and deer winter survival, habitat should be managed to provide approximately 10 to 15 percent of the area in created or natural openings, with the remainder of the area in a combination of hiding and thermal cover. An area shall be considered a created or natural opening if it has 60 percent or less crown closure. Twenty percent of the area necessary for winter survival should be managed as “optimal cover” having overstory and understory canopies which provide forage and snow intercept characteristics. These criteria are generally achieved when: 1) The dominant trees average 21 inches in diameter or greater, 2) there is 70 percent or greater crown closure, and 3) the stand is predominantly in a large sawtimber condition. It is expected that much of this cover will be present in River Corridors, Scenic Areas, riparian areas, and in areas not available for timber harvest, such as undeveloped recreation areas. Exceptions will be identified through herd unit analysis during Plan implementation. For elk habitat, the size of the area evaluated should correspond to that used by the local elk herd, if there is one.

- b. Roads should be managed to reduce wildlife disturbance.

16. Additional Raptors

Nest sites being actively used by raptors shall be protected from human disturbance until nesting, feeding, and fledging have been completed. Protection of the nest sites should be sufficient for the species involved and maintain the integrity of the present tree structure and the characteristics of the surrounding habitat. Inactive raptor nests should be protected to provide nesting quarters for opportunistic (non-nest building) raptors. The appropriate level of protection will be determined through the interdisciplinary analysis process on a site-specific basis. Nesting areas are divided into primary and secondary zones

- a. Primary

- 1) The boundary of the primary zone should not be less than 300 feet. The management objective for this zone is to maintain the present habitat characteristics
- 2) The critical period during which human activities should be restricted will usually fall between March 1 and August 31.

- b. Secondary

- 1) The boundary of the secondary zone should be an additional 300 foot radius beyond the primary zone (total 600 foot radius). The management objective for this zone is to serve as a modified treatment area between the primary zone and the full treatment area beyond the secondary zone.
- 2) The critical period is the same as addressed above in primary zone.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

E. Range

Grazing activity should be provided at levels compatible with other resource goals.

F. Timber

NOTE: **Chargeable volume** is wood fiber that was included in growth and yield projections for management prescriptions applied on lands suitable for timber production and used to arrive at the allowable sale quantity based on Regional utilization standards as found in the Pacific Northwest Regional Guide. Cull, tops, fuelwood, and scattered dead trees (normal mortality) are considered **nonchargeable volume**. Utilization standards on timber sale contracts may vary depending on markets and cost of harvesting.

1. Timber sales shall be scheduled based on resource needs and objectives as determined by an evaluation of Integrated Resource Analysis Areas (IRAAs). Timber sale alternatives shall be formulated and analyzed within the context of the IRAA analysis. IRAA-specific resource data will be stored for future scheduling and planning.
2. Timber harvesting shall be programmed based on the following priorities:
 - To harvest mortality from insect, disease, blowdown, and fire.
 - To improve growth of culminated stands through even-aged harvesting methods on suitable lands.
 - To improve growth and thrift of timber stands through commercial thinnings.
 - To provide ecologically diverse stands, including stands with some old-growth characteristics remaining after harvest.
3. Size and Dispersal of Openings
 - a. Forest openings created by the application of even-aged harvest cutting methods shall be limited to a maximum size of 60 acres in the Douglas-fir type (as defined by the Regional Guide) and to a maximum size of 40 acres for all other forest types. Exceptions are permitted for natural catastrophic events (such as fires, windstorm, or insect and disease attacks) or on an individual basis after a 60-day public notice period and review by the Regional Forester.

In addition, the limits may be exceeded by as much as 50 percent without necessitating review by the Regional Forester or 60-day public notice when exceeding the limit will produce a more desirable combination of net public benefits, and when any one of the following four criteria is met:

- 1) When a larger created opening will enable the use of an economically feasible logging system that will reduce the disturbance to soil, water, fish, riparian resources, or residual vegetation. Such reductions can be achieved by reducing landing or road construction, by enabling such construction away from unstable soil, or by reducing soil and vegetation disturbance caused by lack of suspension of logs.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

- 2) When the created opening cannot be centered around groups of trees infected with dwarf mistletoe or root rot and therefore needs to be expanded to include these trees in order to avoid infection of susceptible adjacent conifers.
 - 3) When Visual Quality Objectives require openings to be shaped and blended to fit the landform
 - 4) When larger openings are needed to achieve regeneration objectives in harvest areas being cut by the shelterwood method, and where destruction of the newly created stand would occur as a result of delayed removal of shelter trees. This exception applies only to existing shelterwood units and to shelterwood units under contract prior to approval of the Forest Plan.
- b. Created openings shall be separated by blocks of land that generally are not classed as created openings and that contain one or more logical harvest units. Sizes and stand structures of these blocks shall be appropriate to meet resource requirements of the Forest Plan. Resource requirements may include wildlife habitat, watershed, landscape management, and others. Contiguous harvest units (cornering or otherwise touching) are not precluded, but must be considered as a single opening which must be created within requirements for size, exception procedures, and justification

The total area of created openings contiguous to 30-acre or larger natural openings should normally not exceed one-third the size of the natural opening and not occupy more than one-third of the natural opening perimeter. Openings should not be created adjacent to any natural openings (regardless of size) unless adequate vegetation along the edge can be developed or retained in sufficient density to protect wildlife and meet Scenic objectives. The determination of adequate vegetation will be made by an appropriate interdisciplinary team.

- c. A harvested area of suitable forest land will no longer be considered a created opening for planning purposes when stocking surveys, carried out in accordance with Regional instructions, indicate prescribed tree stocking that is at least 4-1/2 feet high and free to grow. When other resource management considerations (such as wildlife habitat, watershed needs, or visual requirements) prevail, a created opening will no longer be considered an opening when the vegetation in it meets a particular management objective. For example, the objectives for a specified big-game winter range might require trees to be 20 feet tall before the adjacent stand may be harvested. In other instances, entry may be made sooner to meet specific resource or management requirements.
4. Timber harvest shall not be programmed from the following lands
- Those that have been withdrawn legislatively or administratively by the Secretary of Agriculture or Chief of the Forest Service.
 - Those where technology is not available that will ensure timber production without irreversible resource damage to soil productivity or watershed conditions.
 - Those where there is not reasonable assurance that lands can be adequately restocked within 5 years of final harvest and 10 years after the regeneration cut in shelterwoods.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

5. Where consistent with management area prescriptions, salvage or sanitation harvest of individual trees or stands damaged by fire, windthrow, or insects or disease may occur. An environmental analysis shall be prepared for salvage or sanitation harvest activities.
6. Salvage or sanitation harvest should be done in a silviculturally sound manner and, when appropriate, should require a regeneration prescription.
7. Log suspension, directional felling, and lateral yarding capabilities should be required as needed to meet resource concerns and/or improve utilization. This may entail full log suspension in areas that have a significant potential for soil loss from slope movement or erosional processes resulting from ground disturbance.
8. Long-span and helicopter yarding systems should be supported by economic and/or resource benefits.
9. As it becomes economically feasible, removal of residue biomass not needed for other resources should be required.
10. Silvicultural prescriptions shall be prepared for all activities proposing vegetative manipulation through timber harvest. All prescriptions shall be prepared or approved by a certified silviculturist.
11. Areas of high risk of slope instability due to loss of root strength should incorporate a geotechnical analysis as part of the environmental assessment process.
12. Timely site preparation for artificial regeneration should occur to assure adequate stocking within three years of final harvest.

G. Water, Soil, and Air

1. Management activities shall be designed to minimize soil disturbance and maintain or enhance long-term soil productivity, and shall meet regional watershed condition standards (see FSM 2520 2, Region 6 Supp. #50).
2. Detrimental soil conditions should not exceed 20 percent of the total acreage within the timber sale activity area, including landings and system roads. Restoration treatments should be implemented if detrimental conditions are 20 percent or more of the activity area. Detrimental soil conditions include, but are not limited to, compaction, puddling, displacement, and severely burned soil.
3. State requirements shall be complied with in accordance with the Clean Water Act for protection of waters of the State of Washington (Washington Administrative Code, Chapters 173-201 and 202) through planning, application, and monitoring of Best Management Practices (BMPs) in conformance with the Clean Water Act, regulations, and Federal guidance issued thereto.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

In cooperation with the State of Washington, the Forest shall use the following process:

- a. Select and design BMPs based on site-specific conditions, technical, economic, and institutional feasibility, and the water quality standards for those waters potentially impacted.
- b. Implement and enforce BMPs.
- c. Monitor to ensure that practices are correctly applied as designed.
- d. Monitor to determine the effectiveness of practices in meeting design expectations and in attaining water quality standards.
- e. Evaluate monitoring results and mitigate where necessary to minimize impacts from activities where BMPs do not perform as expected.
- f. Adjust BMP design standards and application when it is found that beneficial uses are not being protected and water quality standards are not being achieved to the desired level. Evaluate the appropriateness of water quality criteria for reasonably assuring protection of beneficial uses. Consider recommending adjustment of water quality standards.

For a more complete explanation of the above, refer to Appendix J, “Best Management practices.”

4. Rehabilitation projects should be monitored and, when necessary, appropriate mitigation measures should be taken.
5. Individual analysis should be made for each proposed management activity involving small domestic water sources. This analysis may result in mutual cancellation of an existing permit, moving a water system intake, use of special (mitigating) practices, or disapproval of the proposed activity.
6. In watersheds where project scoping identifies an issue or concern regarding the cumulative effects of activities on water quality or stream channels, a cumulative effects assessment shall be made using the Olympic National Forest water quality cumulative effects model. The analysis should include land in all ownerships in the watershed. Activities on National Forest land in these watersheds should be dispersed in time and space to the extent practical, and at least to the extent necessary to meet management requirements. For intermingled ownerships, scheduling efforts should be coordinated to the extent practical.
7. Unstable road sidecast material should be removed where necessary to prevent slope movement that would cause significant adverse effects on downslope resources or stream channels.
8. Vegetation needed to preserve soil and water values should be protected from adverse effects from logging activities, broadcast burning, road management and maintenance, and other management activities.
9. A State water right shall be obtained for water uses, with the exception of activities covered by the reservation principal (watershed protection and timber management activities).
10. Air quality standards for Olympic National Forest and the State of Washington are established in the Washington State Implementation Plan.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

- a. Management activities within the Forest shall be planned to maintain air quality at a level which meets or exceeds applicable Federal and State standards and regulations.
- b. The Forest shall coordinate its activities with the appropriate air quality regulatory agencies.
- c. The Forest should demonstrate reasonable progress in reducing total suspended particulate (TSP) emissions from prescribed burning.
- d. Consideration should be given to using the mitigating measures listed in the FEIS to the Pacific Northwest Regional Guide for reducing emissions from prescribed burning.

H. Minerals, Energy, and Geology

1. Under the mining laws, prospectors and miners have a right of access into National Forest land. Access and operations which might cause disturbance of surface resources shall be analyzed in response to a proposed operating plan. A decision on approval of reasonable access shall be made as a result of appropriate environmental analysis.
2. Operating plans and permits shall contain provisions for environmental protection and for timely and effective reclamation.
3. Mineral lease applications should be reviewed in a timely fashion. Conditions necessary to protect surface resources shall be provided to the Bureau of Land Management.
4. Appropriate special stipulations to oil and gas leases shall be recommended to the Bureau of Land Management when determined necessary to protect the surface resources and/or to meet the Desired Future Condition of the management area(s) involved.
5. A 'no surface occupancy' stipulation shall be recommended only: (1) when surface occupancy would cause significant resource disturbance which cannot be mitigated by any other means; (2) where resource impacts would be irreversible or irretrievable; or (3) where the activity is incompatible with the surface management Goal and Desired Future Condition of the management area(s) involved.
6. Saleable mineral material sources (rock pits) shall be rehabilitated to the extent feasible as development progresses. Final rehabilitation shall be completed after final entry.
7. All saleable, locatable, and leasable mineral activity should be avoided within the foreground of sensitive travel routes, water bodies, and developed recreation sites. When analysis shows that this is not feasible, the activity should be designed and implemented to meet the Visual Quality Objectives of the area.
8. All saleable, locatable, and leasable mineral activity, and development of all hydropower projects, should be compatible with the Goal and Desired Future Condition of the management area in which it is located.
9. Proposals for hydropower uses shall require an environmental assessment and coordination with the Federal Energy Regulatory Commission (FERC). For approved projects, emphasis shall be placed upon minimizing the impact on resources.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

I. Human and Community Development

1. The public, including minorities and the physically challenged, shall be informed of the availability of Forest programs and opportunities.
2. The Forest shall involve American Indians in Forest planning processes.
3. If during the scoping phase for project analyses it is determined that American Indian rights are an issue, the potentially affected tribes should be involved in the project planning process.
4. The Treaty rights and privileges of affected Indian tribes shall be considered and appropriately provided for in all Forest activities. Information about proposed project activities should be shared with tribal groups whose traditional religious practices, sites, or resources may be affected.
5. Forest activities and programs shall be conducted in such a manner as to protect and preserve the rights (as defined by the American Indian Religious Freedom Act) of American Indians to exercise their traditional religions and freedom to worship through ceremonies and traditional rites, including access to sites and use and possession of sacred objects.
6. Old-growth cedar should be made available for traditional American Indian cultural and religious uses, The supply of large, old-growth cedar trees shall be monitored to assure that this resource will remain available in perpetuity.

J. Lands

1. Special use of National Forest land may be authorized when such use cannot reasonably be accommodated on private land. In considering special use applications, the interests and needs of the general public shall be given priority over those of the applicant. Use should be compatible, and in harmony with, the surrounding landscape.
2. When issued or renewed, special use permits should be consistent with the Goal and Desired Future Condition for each Management Prescription.
3. Existing nonconforming, incompatible, or inappropriate uses should be terminated on an opportunity basis.
4. Unless specifically exempted by regulation, all private special uses of National Forest land should be authorized on a charge basis.
5. Applicants may be required to furnish necessary environmental analysis, surveys, plats, drawings, etc., and provide funds for the processing and administration of permits.
6. Special use authorizations for use or development of sites and facilities should emphasize:
 - a. The utilization of existing capacities at approved sites.
 - b. Competitive processes for interest by multiple applicants.
 - c. Preparation of environmental analysis, master plans, site charters, surveys, and site development plans.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

- d. That land and other resources committed must be suitable for the proposed use.
- e. That encumbrances on National Forest land should be kept to the minimum area and duration possible.
- 7. The Forest may grant needed easements to State and local governments for proposed, existing, and relocated roads and highways.
- 8. The Forest should coordinate with intermingled and adjacent landowners, plus State and local governments, in developing roads and trails that serve the needs of all parties. Where appropriate, the Forest should acquire rights-of-way or enter into/continue existing cost-share agreements in order to support resource management objectives.
- 9. The Forest shall grant access to private property in accordance with Federal regulations and standards. Rights-of-way may be granted through easement or permit where appropriate to provide access to adjacent private land.
- 10. New transportation/utility proposals or expansion of existing utility systems should be accommodated within existing corridor systems to the maximum extent feasible. Additional corridors needed for utilities or highways shall be assessed through an interagency environmental analysis and in consultation with industry and interest groups.
- 11. Lands may be acquired and disposed of through exchange or other means to support resource and management objectives, and to resolve encroachment where applicable.
- 12. Boundaries should be surveyed and posted where such action will assist in the administration of National Forest lands, and/or protect existing survey corners or references when probability of disturbance exists.

K. Facilities

- 1. Erosion prevention measures shall be in place, both during and following road construction, prior to seasonal run-off.
- 2. Vegetative cover on cuts and fills should be maintained.
- 3. Stabilized road ditches should not be disturbed by road maintenance unless necessary to maintain drainage. Side-casting shall be avoided except at designated locations.
- 4. Roads shall be planned, designed, constructed, and maintained to minimize impacts on the land and resources, considering economics and user safety.
- 5. Roadside vegetation may be controlled using a variety of methods determined by an analysis of the size of vegetation, economics, traffic safety, and resource impacts, as described in a project-specific environmental analysis.
- 6. Transportation system planning should incorporate state-of-the-art design and location criteria to minimize long-term costs and impacts on resources. Road location and logging systems analysis should be conducted in an interdisciplinary manner.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

- a. Road management objectives should be used to provide a road sufficient to carry the anticipated traffic load with reasonable safety after geotechnical and economic analyses have been made.
 - b. Potential road locations identified as having high instability should be avoided.
7. Signing necessary for traffic information and user control should be pertinent to the intended use, the road objectives, and the conditions.
8. Sound road management objectives should be applied Forest-wide. It may not be desirable or cost-effective to plan for full maintenance of the entire open system. Rather, management must be consistent with the resource management objectives.
9. Forest development roads shall be managed with a mix of prescriptions to accomplish management objectives and to reduce user conflicts.
 - a. Roads may be made available or restricted for different user groups at different times.
 - b. Roads shall not be used if their use causes damage to the road or unacceptable impacts to adjacent resources (36 CFR 261) Damage is exclusive of normal wear and tear correctable by maintenance activities.
 - c. Use of Forest development roads by commercial users requires a permit, contract provision, easement deed, or other written authorization (36 CFR 212 and CFR 261)
10. Base decisions to block or close roads on the following criteria:
 - a. Expected need or use, including postsale potential.
 - b. Need to provide planned recreation experience opportunities.
 - c. Need to protect critical habitat.
 - d. Need to protect or reduce impact on wildlife and fish habitat.
 - e. Need to protect soil and water.
 - f. Need to protect the facility.
 - g. Safety of expected users.
 - h. Economics of road maintenance.
11. Projects should be identified and implemented to correct road-related problems that are adversely impacting the road and/or other resources.
12. Each Forest development road should have entrance information that communicates to the Forest visitor the road conditions and purpose of the road.
13. Trail density, trail and trailhead location, and road maintenance levels should be consistent with the Desired Future Condition of the management area(s) involved and the management

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

intensities to be applied. All trails should be protected. Trails that are damaged by management activities should be restored or replaced.

14. Ditch relief culverts should be sized, spaced, located, and maintained to minimize sedimentation to streams.
15. Water systems for campgrounds and administrative facilities shall be operated, maintained, and/or upgraded in a manner which complies with applicable public laws. Systems which do not meet public health standards and requirements shall immediately be corrected or closed.
16. Trail closures to a particular use shall be based on the following guidelines:
 - a. Motorized Vehicles:
 - 1) A trail shall be closed to motorized vehicles when:
 - a) Trail is inside Wilderness (see Wilderness Act, Sec. 4 (c)).
 - b) Use by motorized vehicles is causing, or will cause, adverse effects on the resources or other forest visitors (see 36 CFR 295.2 (a)).
 - c) It is necessary to protect the Wild, Scenic, or Recreational values for which a river area was designated in the Wild and Scenic Rivers system (see Wild and Scenic Rivers Act, Sec. 10 (a)).
 - 2) A trail may be closed to motorized vehicles when:
 - a) Trail enters either Wilderness or Park from the trailhead.
 - b) The entire length of trail is less than 3.0 miles and is a dead end (MVs could not continue on via a road or another trail).
 - c) Trail is managed as a pedestrian nature/interpretive trail.
 - d) Trail management objective is aimed at managing a trail for specific uses other than motorized vehicles.
 - b. Pack and Saddle Stock:
 - 1) A trail may be closed to pack and saddle stock when:
 - a) Trail is managed as a pedestrian nature/interpretive trail.
 - b) Use by pack and saddle stock is causing, or will cause, adverse effects on the resources or other forest visitors.
 - c) Entire length of trail is less than 3.0 miles and is a dead end (stock could not continue on via a road or another trail).
 - d) Trail management objective is aimed at managing a trail for specific uses other than pack and saddle stock.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

c. Mountain Bicycles:

- 1) A trail shall be closed to mountain bicycles when:
 - a) Trail is inside Wilderness (see Wilderness Act, Sec 4 (c)).
- 2) A trail may be closed to mountain bicycles when:
 - a) Trail enters either Wilderness or Park from trailhead.
 - b) Trail is managed as a pedestrian nature/interpretive trail.
 - c) Use by mountain bicycles is causing, or will cause, adverse effects on the resources or other forest visitors.
 - d) Trail management objective is aimed at managing a trail for specific uses other than mountain bicycles.

L. Protection

1. The fire protection and fire use program shall be cost-effective and responsive to land and resource management objectives.
2. All wildfires shall receive timely suppression response with appropriate forces, and with a strategy of either one, or a combination of, the alternatives of confinement, containment, or control. The public should be informed about the philosophy of fire management policy. Fire suppression strategies may vary depending on fire intensities, resource value priorities, the values at risk, and fire behavior (predicted and observed).
3. An "Escaped Fire Situation Analysis" shall be prepared for wildfires that escape initial action and threaten to exceed established limits. This analysis weighs the cost of suppression against the potential change in resources. Suppression actions should be appropriate for the values threatened.
4. Resource value priorities for protection shall be:
 - a. Life and property.
 - b. Soil productivity and water quality.
 - c. Threatened, endangered, and sensitive species habitat.
 - d. Fish and wildlife habitat.
 - e. Timber investments.
 - f. Air quality.
5. The National Fire Management Analysis System shall be utilized to determine the most cost-efficient fire protection organization. As conditions change and better information is developed, the fire organization shall be reevaluated with this system.

FOREST-WIDE STANDARDS AND GUIDELINES BY PROGRAM ELEMENT

6. Cost-effective plans for the prevention of human-caused fires shall be aimed at specific risks to be determined by ongoing monitoring of current and recent fire reports.
7. Equipment and training shall be provided to USDA Forest Service employees outside of the Fire Management organization to assist in initial attack and other fire suppression duties and positions.
8. Minimum monitoring requirements for fire protection should include: (1) Actual cost by individual fire, and (2) estimated fire effects on resource values for Class C and larger fires. The primary reporting document shall be the Individual Fire Report (5100-29, Revised).
9. Fuels management shall utilize the National Fire Management Analysis System and Fuels Appraisal System to determine the level of treatment required for fire protection purposes. As conditions change and better information is developed, fuels managers shall adopt it.
10. Levels and methods of fuels treatment shall be guided by the protection and resource objectives of the management area. Prescribed burning should be the least-preferred method. Treatment methods that reduce emissions should be emphasized. Emphasis should be on intensive utilization of wood residues, using a marketing strategy to reduce fuel loadings not needed for other resources.
11. Prescribed fire may be utilized to meet management objectives and maintain fuel profiles in appropriate ecosystems.
12. Prescribed fire plans shall be prepared in advance of ignition and approved by the appropriate line officer for each prescribed fire.
13. Maintenance of air quality shall be emphasized when planning prescribed fire use. Practical means of smoke management (reduction, avoidance, and scheduling) shall be employed. All burning shall be planned and conducted in accordance with State smoke management plans.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

In addition to Forest-wide Standards and Guidelines, which apply to all Forest lands, the following standards and guidelines are applicable to specific management areas on the Olympic National Forest. The Management Prescriptions and their associated standards and guidelines are detailed on the following pages Refer to the management area allocation map for the Preferred Alternative (Alternative C-Preferred (Modified)) which accompanies the FEIS. The detailed control map for the Forest Plan allocations resides in the Forest's computerized Geographic Information System (GIS). This control map is available for review in the Olympic National Forest Supervisors Office.

If unusual or special circumstances inconsistent with direction for a given management area are discovered, the management area boundary or direction may be modified. Such a modification would be the exception rather than the rule. An example would be the discovery of a bald eagle nesting site within an allocation such as E1-Timber Management. In this case, the site would be redesignated as C3-Bald Eagle Management Area. Boundaries would be modified through the NEPA process to determine what, if any, documentation is needed. Minor modifications to correct mapping errors may be made without modifications to the Forest Plan.

Table IV-20, on the following page, displays the management area allocations associated with the Forest Plan.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

Table IV-20. Management Area Allocations 1/

| Management Area | Forest Plan Allocation Acreage |
|--|--------------------------------|
| A1A – Undeveloped Rec. (Non-Motorized) | 34,500 |
| A1B - Undeveloped Rec. (Motorized) | 6,100 |
| A2 - Scenic | 38,200 |
| A3 - Developed Rec. & Admin Sites | 1,100 |
| A4A - Wild, Scenic & Rec. Rivers | 1,800 |
| A4B - River Corridors | 17,300 |
| B1 - Wilderness | 88,300 |
| C1 - SOHAs | 75,700 |
| C2 - Woodpecker/Marten Habitat Areas | 4,500 |
| C3 - Bald Eagle Management Areas | 1,200 |
| E1 - Timber Management 2/ | 325,700 |
| F1 - Municipal Watersheds | 33,200 |
| F2 - Riparian Areas 3/ | — |
| J2 - Research Natural Areas | 1,524 |
| J3 - Botanical Areas | 3,200 |
| TOTAL NATIONAL FOREST ACRES | 632,324 |

1/ All figures are mutually exclusive, e.g. A4A, J2, J3, etc within Wilderness (B1) are reported only as B1. Generally, the acres are reported for the management area felt to be the most restrictive.

2/ Contains some riparian area, some constrained visual areas, and some unsuitable timberland. Other acres within E1 may prove to be not cost effective for meeting the objectives of this Plan.

3/ The 177,050 acres of Riparian Area are distributed across the Forest and are included in the acreage for the other management areas. Constraints are placed on management of these acres when necessary to achieve Riparian Area protection objectives.

MANAGEMENT PRESCRIPTION A1A - UNDEVELOPED RECREATION (NON-MOTORIZED)

GOAL: Provide a variety of undeveloped recreation opportunities in areas characterized by a predominantly natural or natural-appearing environment in a Primitive or Semi-Primitive setting where motorized use is prohibited

DESIRED FUTURE CONDITION: A natural or natural-appearing environment has been maintained. Campsites, sanitation facilities, and other management activities are not conspicuous. The area affords visitors an experience mostly free from the sights and sounds of other people. Recreation management should be consistent with criteria for Recreation Opportunity Spectrum (ROS) classes Primitive and Semi-Primitive Non-Motorized as described in the ROS User's Guide.

APPLICABLE NATIONAL FOREST AREAS: This prescription is applied to selected areas that have a natural or natural-appearing environment with undeveloped recreational attributes. The area provides opportunities to practice a variety of outdoor skills in a challenging environment. These areas provide non-motorized recreation opportunities such as fishing, hunting, berry picking, hiking, backpacking, mountain climbing, and horseback riding.

MANAGEMENT INTENSITIES

1. Primitive ROS Class
2. Semi-Primitive Non-Motorized ROS Class

STANDARDS AND GUIDELINES

A. Recreation

1. Motorized vehicles should not be permitted except under the following management situations: aerial fish stocking, habitat improvement, trail maintenance, construction, and reconstruction, transporting facilities necessary for public safety and health, and emergency situations involving search and rescue and firefighting.
2. Site modification for facilities should be very minimal to none, and the site development should be level 2 or less.
3. Recreation facilities, such as toilets, trail shelters, signs, and fire rings, should be designed, constructed, and maintained as primitive and rustic facilities, utilizing native materials and colors when and where possible.
4. The trail system should be designed and managed to disperse use to sites that are suitable for overnight camping and/or offer interesting day-use opportunities.
5. Undeveloped campsites should be located and maintained so that less than three campsites are visible from any other in the Primitive ROS areas and less than six campsites are visible from any other in the Semi-Primitive ROS areas.
6. Resource management activities shall follow the Visual Management System guidelines in order to protect scenic values.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

B. Timber

1. Timber is not available for programmed harvest.
2. Timber harvest may take place when resource management goals identify it as a management tool to enhance other resource values such as wildlife habitat improvements, trail construction, recreation, and helispots. Timber harvest may be allowed in catastrophic situations such as fire, blowdown, or insect and disease outbreaks when consistent with the Desired Future Condition. Aerial or full-suspension yarding systems are preferred. Restoration of such an area will be designed to eventually return it to its natural state.
3. When timber harvesting is prescribed, an environmental analysis, with an appropriate environmental document approved by the responsible Line Officer, shall be prepared.
4. Scheduled timber harvest activities outside of the area may extend right up to the management area boundary.
5. New roads constructed within one-half mile of the management area boundary should be managed to minimize the impact on the recreation experience within the management area

C. Minerals and Energy

Development of saleable mineral sites and hydroelectric power projects should not be permitted. Where approved, development and operating plans must contain provisions to mitigate factors which conflict with the Goal and Desired Future Condition of the area.

D. Facilities

1. Facilities should be kept to a minimum, but provided when needed for access, resource protection, safety, and habitat improvement. As a setting norm, no roads should be constructed. However, low volume traffic access may be constructed to provide access to sites, such as mining claims, when the setting criteria can be achieved.
2. Facilities should be designed, constructed, and maintained to be compatible with the characteristic landscape by utilizing native materials and harmonious color schemes when and where possible.
3. Trail design, construction, and maintenance should be consistent with the ROS class and the trail management objective. Trail grades and standards should be varied to provide planned levels of experiences.
4. Facilities should not be constructed within meadows.
5. Project planning, design, and the operation and maintenance of facilities, such as trailhead parking lots, trails, and trail facilities, should be aimed at limiting user encounters.
6. Development of utility corridors should not be permitted.
7. Brush treatment methods that minimize visual impacts should be used in the foreground along Sensitivity Level 1 and 2 travel routes and use areas.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

E. Protection

1. Fuels created by project activities should be treated to meet fire hazard standards based on resource values at risk.
2. Heavy equipment may be used to construct fire lines where the overall effects of the fire and its suppression on the environment will be reduced. A Resource Advisor should advise the Incident Commander of techniques required to reduce impacts of equipment use and provide advice on rehabilitation of impacted areas and facilities. Any facility damaged while constructing fire lines shall be restored.
3. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control* and *Contain*.

MANAGEMENT PRESCRIPTION A1B- UNDEVELOPED RECREATION (MOTORIZED)

GOAL: Provide a variety of undeveloped recreation opportunities in areas characterized by a predominantly natural or natural-appearing environment in a Semi-Primitive setting where motorized use may be permitted.

DESIRED FUTURE CONDITION: An essentially natural or natural-appearing environment has been maintained. Campsites, sanitation facilities, and other management activities are not conspicuous. The area generally affords the visitor an experience mostly free from the sights and sounds of large numbers of recreationists. Recreation management should be consistent with criteria for Recreation Opportunity Spectrum (ROS) class Semi-Primitive Motorized as described in the ROS Users Guide.

APPLICABLE NATIONAL FOREST AREAS: These areas consist of a natural or natural-appearing environment. They provide opportunities to practice a variety of outdoor skills in a challenging environment. They provide motorized recreation opportunities along roads, and they may provide motorized recreation opportunities on trails. These areas will also provide non-motorized recreation opportunities, such as hunting, fishing, hiking, backpacking, and mountain climbing.

MANAGEMENT INTENSITIES: Semi-Primitive Motorized (SPM).

STANDARDS AND GUIDELINES:

A. Recreation

1. Motorized vehicles may be permitted on roads and specified trails. Some trails may be closed to motorized vehicles.
2. Recreation facilities, such as toilets, trail shelters, signs, and fire rings, should be designed, constructed, and maintained as primitive and rustic facilities, utilizing native materials when and where possible.
3. Undeveloped campsites should be located and maintained so that less than six campsites are visible from each other.
4. Resource management activities shall be guided by the Visual Management System in order to protect the scenic values.

B. Timber

1. Timber is not available for programmed harvest.
2. Timber harvest may take place when resource management goals identify it as a management tool to maintain or enhance other resource values such as wildlife habitat improvements, trail construction, recreation, and helispots. Timber harvest may also be allowed in situations, such as catastrophic fire, blowdown, or insect and disease outbreaks, when consistent with the Desired Future Condition. Aerial or full-suspension yarding systems are preferred. Restoration of such an area will be designed to eventually return it to its natural state.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

3. When timber harvesting is prescribed, an environmental assessment shall be prepared and approved by the responsible Line Officer.
4. Scheduled timber harvest activities outside of the area may extend up to the management area boundary.
5. New roads constructed within one-half mile of the management area boundary should be managed to minimize the impact on the recreation experience within the management area.

C. Minerals and Energy

Development of saleable mineral sites and hydroelectric power projects should not be permitted. Where approved, development and operating plans must contain provisions to mitigate factors which conflict with the Goal and Desired Future Condition of the area.

D. Facilities

1. Facilities should be kept to a minimum but provided when needed for access, resource protection, safety, and habitat improvement
2. Facilities should be designed, constructed and maintained to be compatible with the characteristic landscape by utilizing native materials and harmonious color schemes when and where possible.
3. Trail design, construction, and maintenance should be consistent with the ROS class and the trail management objective. Trail grades and standards should be varied to provide planned levels of experience.
4. Development of utility corridors should not be permitted.
5. Facilities should not be constructed within meadows.
6. Brush treatment methods that minimize visual impacts should be used in the foreground along Visual Sensitivity Level 1 and 2 travel routes and use areas.

E. Protection

1. Fuels created by project activities should be treated to meet fire hazard standards based on resource values at risk.
2. Heavy equipment may be used to construct fire lines where the overall effects of the fire and its suppression on the environment will be reduced. A Resource Advisor should advise the Incident Commander of techniques required to reduce impacts of equipment use and provide advice on rehabilitation of impacted areas and facilities. Any facility damaged while constructing fire lines shall be restored.
3. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control* and *Contain*.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

MANAGEMENT PRESCRIPTION A2 - SCENIC

GOAL: To manage specific landscapes in such a manner that their scenic values are protected, maintained, and/or enhanced as viewed from major travel routes, use areas, or water bodies. To develop interdisciplinary Viewshed Schedules that provide management direction aimed at meeting the Desired Future Condition.

DESIRED FUTURE CONDITION: Landscapes are providing pleasing scenery as viewed from travel routes, use areas, and water bodies. These landscapes will accommodate management activities that are not evident, or are visually subordinate to the natural landscape, when viewed by casual forest visitors.

APPLICABLE NATIONAL FOREST AREAS: This prescription is applied to selected viewsheds that involve sensitive landscapes due to their visibility from major travel routes and recreation areas.

MANAGEMENT INTENSITIES: Two intensifies are identified for this prescription:

1. Retention
2. Partial Retention

STANDARDS AND GUIDELINES:

A. Recreation

Visual Quality Objectives shall be met. Exceptions may be allowed in the case of facility development in foreground areas (see D below). Key references for this prescription shall be volumes 1 and 2 of the Visual Management System.

B. Timber

1. Timber harvesting shall be programmed when compatible with the Desired Future Condition.
2. Activities should be designed to mitigate and rehabilitate unacceptable visual impacts due to past timber management activities that do not meet Visual Quality Objectives.
3. Reforestation site preparation methods which minimize visual disturbance should be used in the foreground along Sensitivity Level 1 and 2 travel routes, water bodies, and developed recreation sites.
4. As part of the Viewshed Schedules, management direction shall be developed by an interdisciplinary team, including a landscape architect and silviculturist.
5. For each management activity proposed within a given viewshed, site-specific management prescriptions shall be developed by an interdisciplinary team, including a landscape architect and silviculturist.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

C. Minerals and Energy

Common mineral material sources shall not be developed within the visible foreground

D. Facilities

Facilities, such as roads, trails, buildings, utility structures and corridors, fuel breaks, etc, may be developed in the foreground to facilitate the management of adjacent areas. However, their construction, reconstruction, and maintenance shall be designed to meet the Visual Quality Objectives and/or minimize their dominance upon the natural landscape. Key references are in volume 2 of the Visual Management System (Chapter 2, Utilities; Chapter 3, Range; Chapter 4, Roads; Chapter 6, Fire, and Chapter 8, Recreation).

E. Protection

1. Fire suppression techniques should minimize visual impacts. Heavy equipment may be used to construct fire lines where the overall effects of the fire and its suppression on the environment will be reduced. A Resource Advisor shall advise the Incident Commander of techniques required to reduce impacts of equipment use. The Resource Advisor shall also provide advice on rehabilitation of impacted areas
2. Pest suppression methods should minimize visual disturbances.
3. Catastrophic occurrences may warrant a departure from the Visual Quality Objectives. However, mitigating measures should be implemented to reduce visual impacts and to restore the natural character of the landscape.
4. Brush treatment methods that minimize visual impacts should be used in the foreground along Sensitivity Level 1 and 2 travel routes and use areas.
5. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control*.

MANAGEMENT PRESCRIPTION A3- DEVELOPED RECREATION SITES AND ADMINISTRATIVE SITES

GOAL: Provide readily accessible, appropriately designed facilities for concentrated use by people seeking a convenient recreational experience, employees performing duties, and visitors seeking information.

DESIRED FUTURE CONDITION: Roads, buildings, ramps, bulletin boards, tables, and other physical facilities are evident, but their design and construction should be harmonious with the color, shapes, and lines of the surrounding environment and consistent with ROS class. Openings usually exist or may be created to 1) Accommodate facilities, provide scenic views, or meet vegetative management goals within the developed site; and 2) accommodate facilities and space requirements for administrative sites.

APPLICABLE NATIONAL FOREST AREAS: Developed recreation sites include existing and proposed campgrounds, picnic areas, resorts, swimming and boating sites, recreational residence tracts, and trailheads. Developed recreation sites are usually close to water bodies or other scenic or special interest environments. Access is usually by road but may be by trail or water. Administrative sites include, but are not limited to, ranger stations, work centers, residential sites, and guard stations.

MANAGEMENT INTENSITIES:

1. Rural ROS Class
2. Roaded Natural/Modified ROS Class
3. Semi-Primitive Motorized ROS Class
4. Semi-Primitive Non-Motorized ROS Class

STANDARDS AND GUIDELINES:

A. Recreation

1. Developed sites should be provided in Rural through Semi-Primitive Non-Motorized settings, with major emphasis on development within the Roaded Natural/Modified ROS class.
2. Recreation sites should range from primitive to highly developed, with an emphasis on moderately developed sites.
3. Special facilities at selected sites should be provided for the convenience of elderly, young, or physically challenged visitors. This would apply to Rural and Roaded Natural/Modified ROS classes only.
4. Development of new developed and administrative sites and reconstruction of existing sites shall meet the following guidelines:

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

- a. As per an approved Site Development Plan.
 - b. Based on projected demands and past trends.
 - c. Provides for public and employee safety and sanitation.
 - d. Meets long-term maintenance, protection, and enhancement objectives of on-site resources and facilities.
5. Operation and maintenance of developed sites should be guided by the following:
 - a. Forest Service policy and Developed Site Management Schedule.
 - b. Cost-effective management.
 6. Recreational residence numbers shall not exceed the present level. Permits to be phased out should be identified at least 10 years prior to scheduled date.
 7. Recreation residence lots should not be reoffered if the current permit is abandoned.

B. Wildlife and Fish

1. Emphasis should be toward the maintenance and enhancement of the shellfish habitat at Seal Rock Campground.
2. Protection of existing developed sites should be a higher priority than the protection of onsite fish habitat.
3. Opportunities for visitors to view fish and wildlife may be provided.

C. Range

Grazing shall not be allowed.

D. Timber

1. Timber is not available for programmed harvest
2. Vegetation should be managed as prescribed in a Vegetative Management Schedule for each site. Priorities will be to:
 - a. Reduce risk of public injury and facility damage from hazardous trees and other vegetation. Reduce risk vegetation only until a Vegetative Management Schedule is approved.
 - b. Maintain or enhance the natural character associated with the recreational experience of developed sites and the landscape associated with administrative sites.

E. Water, Soil, and Air

1. Water rights shall be acquired from the State of Washington for all sources supplying or expected to supply water to a recreation site. This water must meet requirements of the Department of Ecology for surface or ground water usage.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

2. Sewage effluent from campgrounds, administrative sites, and other developed areas shall be disposed of in a manner which will prevent the contamination of surface or ground water.

F. Minerals and Energy

1. Development of common variety aggregate sources shall be prohibited.
2. Developed recreation and administrative sites shall be withdrawn from mineral entry.
3. Hydropower developments may be allowed only if developed sites lost as a result will be replaced with equal or better facilities by the hydropower developer.

G. Facilities

1. The transportation system, recreation facilities, and utility structures and corridors within developed recreation sites should be designed, constructed, and maintained to meet the recreation objectives, Visual Quality Objectives, and planned experience level set for the site.
2. Trails should be designed, constructed, and maintained to maximize the recreation experience consistent with the ROS class and the trail management objective. Trail grades and standards may be varied to provide planned levels of experiences.
3. The transportation system, buildings, utility systems, and other related facilities should be planned, developed, maintained, and operated for safe use, support of Forest resource programs, and cost-effectiveness.
4. The location and construction of new buildings, roads and parking lots, and additions to existing buildings and utility systems, as well as any land alteration, shall comply with the approved site development plan and meet approved standards.
5. Designs for construction of new buildings and reconstruction of existing buildings should be developed with consideration of access for the physically challenged.
6. Administrative facilities management and maintenance should be guided by the following priorities:
 - a. Public and employee safety and health.
 - b. Prevention of site and interior and exterior building deterioration.
 - c. Forest Service identity and Good Host image.
 - d. Energy conservation.
 - e. Access for the physically challenged. Minor improvements.

H. Protection

1. Use of heavy equipment to control fires may be allowed if it reduces total impact on the recreation site. Rehabilitation of impacted areas shall be initiated within four weeks of impact.

STANDARDS AND GUIDELINES MANAGEMENT AREA PRESCRIPTIONS

2. Recreation sites should not be used as fire camps.
3. Fuel break construction should be integrated with vegetative management projects.
4. A thorough hazard tree survey shall be conducted annually. Trees determined to be an existing hazard shall be removed.
5. All inventoried proposed developed recreation sites shall be administered to protect and retain their natural character and recreation values for future development.
6. Brush control methods that minimize visual impacts should be used in and around developed sites, such as along roads, camping spurs, trails, and around structures and signs.
7. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control*.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

MANAGEMENT PRESCRIPTION A4A - WILD, SCENIC, AND RECREATIONAL RIVERS

GOAL: These rivers are recommended for inclusion within the National Wild and Scenic Rivers System. The lands within the river corridors will be managed to retain their existing Wild, Scenic, and Recreational values.

DESIRED FUTURE CONDITION:

Wild Rivers: Generally are inaccessible by road but may be reached by trail or water. Vegetation is varied in size, species, and age and is predominantly the product of natural succession. Good opportunity is provided to interact with a natural environment, away from the sights and sounds of other people. A high degree of challenge may be offered. Rivers are free flowing and free of impoundments and diversions.

Scenic Rivers: Some structures, farming, and evidence of timber harvest may be visible, but the shorelines are largely natural-appearing and undeveloped. The forest appears natural as viewed from the river and riverbank. The rivers are accessed in some places by road, and in some instances road may occasionally reach or bridge the river. A challenging interaction with the natural environment is generally available. Rivers are free flowing and free of impoundments and diversions.

Recreational Rivers: Visitors may reach the river by road, trail, or boat. Considerable development and timber harvest may have occurred near the river, but the area is managed to protect recreational values. Parallel roads may exist on one or both sides of the river. Visitors are likely to share their recreational experience with other individuals or groups. Some previous diversions or low dams may exist.

APPLICABLE NATIONAL FOREST AREAS: Those rivers having the values needed to be considered for Wild, Scenic, or Recreational classification. For planning purposes, a corridor is considered to extend a distance of one-quarter mile on each side of a river channel

MANAGEMENT INTENSITIES:

1. Wild
2. Scenic
3. Recreational

STANDARDS AND GUIDELINES:

A. Recreation

1. Wild Rivers
 - a. Within the river corridor, the Visual Quality Objective of Preservation shall be met.
 - b. Outside the river corridor, but within the area seen from the river, Visual Quality Objectives should be met as determined by the Visual Management System.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

- c. Recreation management should provide Primitive and Semi-Primitive Non-Motorized opportunities.
- d. Recreation sites may be provided, and shall be limited to, simple comfort and convenience facilities.
- e. Motorized travel should not be permitted in Wild river corridors, except for administrative use and where there is a past history of significant use.
- f. Trails may be developed but should be located and constructed to be unobtrusive from the river or riverbank.
- g. Recreation special uses may be approved for the purpose of providing a river-oriented recreation experience if it is consistent with the Desired Future Condition.
- h. Outfitter and guide services will be permitted at a level which is consistent with the management objectives of the river.

2. Scenic Rivers

- a. Within the river corridor, the Visual Quality Objectives of Retention and Partial Retention shall be met.
- b. Outside the river corridor but within the area seen from the river, Visual Quality Objectives should be met as determined by the Visual Management System
- c. Recreation management should provide Semi-Primitive and Roded Natural opportunities.
- d. Recreation sites may be established in close proximity to the river but shall be widely spaced, blend with the natural landscape, and be screened from the river.
- e. Motorized travel may be permitted within Scenic river corridors where compatible with the ROS.
- f. Trails may be developed but should be located and constructed to be generally unobtrusive from the river or riverbank.
- g. Recreation special uses may be approved for the purpose of providing a river-oriented recreation experience consistent with the Desired Future Condition.
- h. Outfitter and guide services will be permitted at a level which is consistent with the management objectives of the river.

3. Recreational Rivers

- a. Within the river corridor, the Visual Quality Objectives of Retention and Partial Retention should be met.
- b. Outside the river corridor, but within the area seen from the river, Visual Quality Objectives should be met as determined by the Visual Management System.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

- c. Recreation sites may be developed in close proximity to the river and should be for the purpose of providing a river-oriented recreation experience consistent with the Desired Future Condition.
- d. Motorized travel on land and water may be permitted.
- e. Trails may be developed to provide access to and along the river corridor.
- f. Recreation special uses may be approved for the purpose of providing a flyer-oriented recreation experience.
- g. Outfitter and guide services will be permitted at a level which is consistent with the management objectives of the river.

B. Wildlife and Fish

- 1. Habitat should be managed to maintain 70 percent or more of the area in thermal/hiding cover.
- 2. Structures for improvement of fish and wildlife habitat may be constructed in Scenic and Recreational river corridors, provided they do not affect the free-flowing characteristics of the river and harmonize with the surrounding environment. Major projects within Scenic and Recreational river corridors should be coordinated with the Washington Departments of Wildlife and Fisheries, and with applicable Treaty tribes.

Habitat improvement projects should not be developed within Wild river corridors.

- 3. Large organic debris that enters Scenic and Recreational Rivers should be left in place unless it interferes with or degrades the values for which the river was designated. Large organic debris shall be left within Wild reaches.

C. Timber

- 1. Timber harvest shall not be programmed in Wild river corridors. Harvest may be programmed in Scenic and Recreational river corridors consistent with the assigned river designation and the Desired Future Condition
- 2. Fuelwood cutting shall not be permitted in Wild river corridors. It may be permitted in Scenic and Recreational river corridors.
- 3. Large woody material should be retained for fish or wildlife habitat needs.

D. Soil and Water

Watershed improvements should be undertaken where deteriorated soil or hydrologic conditions:

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

1. Create a threat to the values for which the river is managed,
2. Present a definite hazard to life or property; or
3. Could cause serious depreciation of important environmental qualities outside the river area.

Rehabilitation and stabilization projects should retain the natural appearance of the area, harmonize with the environment, and have no adverse effect on the river or its environment.

E. Minerals and Energy

1. Common mineral material sources shall not be developed in Wild river corridors and should not be developed in Scenic or Recreational river corridors.
2. New hydropower projects shall not be permitted on any designated or recommended river. Existing dams should be phased out as the opportunity presents itself.
3. Wild river corridors should be withdrawn from mineral entry.

F. Lands

1. National Forest land within Wild, Scenic, and Recreational river corridors should be retained.
2. Non-Federal lands within Wild, Scenic, and Recreational river corridors may be acquired as the opportunity or need occurs if the land becomes available.

G. Facilities

1. Roads shall not be permitted in Wild river corridors.
2. The design, construction, and maintenance of facilities, including trail bridges, must be consistent with Wild, Scenic, or Recreational river values and the Desired Future Condition.
3. Utility corridors should not be permitted within Wild river corridors.
4. New overhead utility lines should not be permitted within Scenic and Recreational river corridors. Any development of utility corridors within Scenic and Recreational river corridors should be discouraged.

H. Protection

1. In Wild and Scenic river corridors, heavy equipment should not be used. Heavy equipment may be used in Recreational river corridors
2. Suppression activities should be modified to maintain the visual quality of the river corridors.
3. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control*.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

MANAGEMENT PRESCRIPTION A4B- RIVER CORRIDORS

GOAL: To retain the inherent values of these rivers, and to provide a variety of outdoor recreation opportunities in a pleasing scenic environment while maintaining or enhancing wildlife and fish habitat.

DESIRED FUTURE CONDITION:

Minimum Management Rivers: Generally inaccessible by road, but can be reached by trail or water. Vegetation is varied in size, species, and age and is generally the product of natural succession. The opportunity to interact with a natural environment, generally away from the sights and sounds of other people, is provided. A high degree of challenge may be offered. Rivers are basically free flowing. Low-head dams and diversions, while permitted, are not likely to be found.

Natural Management Rivers: Some evidence of timber harvest and housing may be visible, but the shorelines are generally undeveloped. The forest along the riverbanks generally appears natural when viewed from the river. The rivers are accessed in places by roads. Roads may reach and occasionally bridge the rivers. A challenging interaction with the natural environment is often available. Rivers are generally free flowing. However, limited diversions and low-head dams may be present.

General Management Rivers: The rivers may be reached by road, trail, or boat. Timber harvest may have occurred near the river and be visible from the river and riverbank. The shoreline generally appears natural as viewed from the river. Residential housing and other limited development may be present in the river corridor. Users of the river and adjacent areas are likely to share their recreational experience with other individuals or groups. Some diversions and low-head dams may exist.

APPLICABLE NATIONAL FOREST AREAS: Land adjacent to identified rivers. For planning purposes, a corridor is considered to extend a distance of one-eighth mile on each side of a river channel.

MANAGEMENT INTENSITIES: Three intensities are included

1. Minimum (A4BM)
2. Natural (A4BN)
3. General (A4BG)

STANDARDS AND GUIDELINES:

A. Recreation

1. Minimum Management Rivers
 - a. Within the river corridor, the Visual Quality Objective of Retention shall be met.
 - b. Recreation sites may be developed which provide Semi-Primitive Non-Motorized opportunities.
 - c. Recreation facilities should be designed, constructed, and maintained as primitive and rustic facilities, utilizing native materials when and where possible.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

- d. Motorized travel should not be permitted within the river corridor, except for administrative use.
- e. Trails may be developed, but should be located and constructed to be unobtrusive from the river or riverbank. The system should be developed and managed to disperse use to sites that are suitable for overnight camping and/or offer interesting day use opportunities.
- f. Recreation special uses may be approved for the purpose of providing a river-oriented recreation experience if it is consistent with the Desired Future Condition.

2. Natural Management Rivers:

- a. Within the river corridor, the Visual Quality Objectives of Retention and Partial Retention should be met as seen from the river and riverbank.
- b. Recreation management should provide Semi-Primitive and Roded Natural opportunities.
- c. Recreation sites may be established in close proximity to the river, but shall be widely spaced, blend with the natural landscape, and be screened from the river.
- d. Motorized travel may be permitted where compatible with the ROS.
- e. Trails may be developed, but should be located and constructed to provide access for the river user while not being obtrusive as seen from the river.
- f. Recreation special uses may be approved for the purpose of providing a river-oriented recreation experience consistent with the Desired Future Condition.

3. General Management Rivers:

- a. Within the river corridor, the Visual Quality Objective of Retention or Partial Retention should be met as seen from the river or riverbank.
- b. Recreation sites may be developed in close proximity to the river, and should be for the purpose of providing a river-oriented recreation experience consistent with the Desired Future Condition.
- c. Motorized travel on land and water may be permitted.
- d. Recreation special uses may be approved for the purpose of providing river-oriented recreation experiences.

B. Wildlife and Fish

- 1. Habitat should be managed to maintain 70 percent or more of the area in thermal/hiding cover.
- 2. Major projects within river corridors should be coordinated with the Washington Departments of Wildlife and Fisheries, and with applicable Treaty tribes.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

3. Large organic debris that enters these rivers should be left in place unless it interferes with or degrades the river values.

C. Timber

1. Timber harvest shall not be programmed in corridors managed at the Minimum management intensity. Harvesting can take place in conjunction with salvage under catastrophic conditions (wind, fire, insect outbreak, or disease), provided such activity is used as a tool to maintain or enhance the river corridor management goals. Restoration of such an area will be designed to return it to its desired state.
2. Timber harvest shall be programmed, but must be designed to meet the Desired Future Condition and Goal of the prescription for areas managed with the Natural and General management intensities.
3. Fuelwood gathering may be permitted. Seasonal restrictions may apply.
4. Salvage cutting unit sizes and shapes should vary within a particular area. Factors such as natural openings, distance zones, closeness to the viewer, viewer position, and topography should determine the size, shape, and pattern of proposed units.

D. Minerals and Energy

1. Development of aggregate sites should not be permitted.
2. Low head run of the river hydropower projects may be permitted.

E. Lands

Recreation special uses should be for the purpose of enhancing the river-related experience.

F. Facilities

1. Facilities should be designed, constructed, and maintained to be compatible with the characteristic landscape, repeating its natural form, line, color, and texture.
2. Road construction within river corridors should be discouraged and shall be consistent with corridor management objectives.
3. New overhead utility lines should not be permitted within river corridors managed under this prescription. Any development of utility corridors within these river corridors should be discouraged.

G. Protection

1. Fuel treatment and site preparation should be designed to protect hardwood and conifer reproduction, understory and ground cover vegetation, snags, leave trees, and downed material in riparian areas.
2. Fire suppression techniques which minimize visual impacts should be utilized.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

3. Heavy equipment may be used in fire suppression where the overall effects of the fire and its suppression would result in less impact on the environment.
4. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control*.

MANAGEMENT PRESCRIPTION B1 - WILDERNESS

GOAL: To preserve and protect in perpetuity the primeval character and influence of the Wilderness. The area's naturalness and opportunities for solitude, challenge, risk, and inspiration will be key features. Opportunities for recreational, scenic, scientific, educational, conservation, and historical uses will be consistent with Wilderness values. Annual Wilderness Implementation Schedules that provide management direction aimed at meeting the Desired Future Condition will be developed for each area. The Limits of Acceptable Change (LAC) System will be part of the Implementation Schedule that will be used for establishing acceptable and appropriate resource, social, and managerial conditions in wilderness settings.

DESIRED FUTURE CONDITION: The area will retain its primeval character. It generally appears to have been affected primarily by the forces of nature, with evidence of human activity substantially unnoticeable. Opportunities for solitude and primitive recreation experience include a range from very high in the Primitive Trailless and Semi-Primitive Trailless areas, to high in the Primitive Trained areas, to moderate in the Semi-Primitive Trained areas. The Primitive Trailless areas afford the visitor an experience free from outside sights and sounds of other visitors and management activities, while the Primitive Trained and Semi-Primitive Trailless and Trained areas offer the visitor an experience *mostly* free from outside sights and sounds of other visitors and management activities.

APPLICABLE NATIONAL FOREST AREAS: This prescription applies to Olympic National Forest lands classified as Wilderness in the 1984 Washington Wilderness Act and later adjusted in the 1986 Forest/Park boundary changes. The Forest's five Wildernesses are:

Buckhorn: 44,258 acres, Quilcene Ranger District
Colonel Bob: 11,961 acres, Quinault Ranger District
Mt. Skokomish: 13,015 acres, Hood Canal Ranger District
The Brothers: 16,682 acres, Hood Canal and Quilcene Ranger Districts
Wonder Mountain: 2,349 acres, Hood Canal Ranger District

TOTAL WILDERNESS ACRES = 88,265

MANAGEMENT INTENSITIES: (Wilderness Resource Spectrum-WRS)

Class I (Least Pristine)

An area that is characterized by a predominately unmodified natural environment. The area generally receives high to very high use. Day use may be a significant portion of the visitation. Evidence of other users within the area is high, and campsites with fire rings are present. System trails are present; their difficulty level generally ranges from Easiest to More Difficult. Stock users may stay overnight. Visitors will generally not experience a high level of solitude, risk, and challenge. Rustic signs and structures may be present. There may be a high frequency of contact with management personnel. This is a Semi-Primitive (and the least pristine) WRS class

Class II

An area that is characterized by an unmodified natural environment. The area generally receives moderate to high use. Day use may be a minor portion of the visitation. Evidence of other users within the area is moderate, and campsites without fire rings are present. System trails are present; their difficulty level generally ranges from More Difficult to Most Difficult. Stock users

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

infrequently stay overnight. Visitors will generally have a moderate level of solitude, risk, and challenge. Rustic signs and structures may be present. There may be a moderate frequency of contact with management personnel. This is a Semi-Primitive WRS class.

Class III

An area that is characterized by an unmodified natural environment. The area generally receives low to moderate use. Day use may be a minor portion of the visitation. Evidence of other users within the area is low to moderate, and campsites without fire rings exist, but are not noticeable from each other. System trails are not present. Stock users infrequently stay overnight. Visitors will generally have a high level of solitude, risk, and challenge. There are no signs or structures. There will be a low frequency of contact with management personnel. This is a Primitive WRS class.

Class IV (Most Pristine)

An area that is characterized by an unmodified natural environment. The area generally receives very low to low use. There is generally no day use. Evidence of other users within the area is very low, and campsites and fire rings do not exist. System trails are not present. Stock users do not visit this area. Visitors will have a high level of solitude, risk, and challenge. There are no signs or structures. There will be a very low frequency of contact with management personnel. This is a Primitive (and the most pristine) WRS class.

STANDARDS AND GUIDELINES:

A. Recreation

1. Motorized vehicles, motorized equipment, motorboats, aircraft landings, or other forms of mechanical transport (including mountain bicycles) shall be prohibited except as necessary to meet minimum requirements for the administration of the area for the purpose of the Wilderness Act, including measures required in emergencies involving the health and safety of persons within the area.
2. The trail system should be designed and managed to disperse use to sites that are suitable for overnight camping and/or offer interesting day use opportunities, while avoiding degradation of the Wilderness resource.

B. Wilderness

Each Wilderness should have an Implementation Schedule. Direction for site-specific management of the resource, social, and managerial factors, along with well-defined standards, shall be identified through the LAC process and monitored for each Wilderness as part of the Implementation Schedule. Wilderness management should be consistent with the criteria for the appropriate management intensity (Wilderness Resource Spectrum class).

C. Wildlife and Fish

1. Structural fish and wildlife habitat improvements shall not be allowed.
2. Fish stocking may continue in previously stocked lakes and streams. Stocking shall only be with indigenous or native species or as specified in the "High Lake and Stream Survey Report," parts 1 and 2. Stocking shall be discontinued when the limits of acceptable change

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

are approaching or exceeding the acceptable limit and the unacceptable changes are related to fish being in the lake or stream. Stocking of barren lakes and streams shall be evaluated through an environmental analysis.

3. Use of aircraft may be permitted for the purpose of stocking lakes and streams where such use existed prior to the establishment of the Wilderness.
4. Wildlife and fish populations should be managed to prevent damage to habitat that affects Wilderness values. Unacceptable changes shall be determined through the LAC process.

D. Range

1. Grazing permits shall not be issued.
2. Open grazing by recreational stock shall not exceed standards set using the LAC process. Supplements should be packed in for feed.

E. Timber

1. Timber management activities shall not be permitted under this management prescription.
2. Scheduled timber harvest activities and road construction outside of the Wilderness may extend right up to the Wilderness boundary. However, the impacts of these activities should be considered, and mitigated when necessary to maintain the Desired Future Condition.

F. Water, Soil, and Air

1. Human and livestock use that has the potential to adversely affect water quality should be minimized.
2. Class II air quality standards shall be maintained.
3. Air quality studies shall be conducted to determine whether these Wildernesses should be redesignated as Class I air quality areas.

G. Minerals

1. Subject to valid existing rights, Wildernesses shall be legislatively withdrawn from all forms of appropriation and disposition under the mining and mineral leasing laws.
2. Prior to approval of an operating plan for a mining activity which would not be compatible with the preservation of the Wilderness environment, the validity of the claim must be determined.

H. Lands

1. Permits, licenses, easements, and rights-of-way should not be allowed unless necessary to meet the objectives of the Wilderness Act.
2. If the properties become available, the Forest Service should acquire private lands within Wildernesses.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

3. Efforts should be made to gain the cooperation of private landowners within and adjacent to Wildernesses to protect Wilderness values.

I. Facilities

1. New roads shall not be permitted unless provided for in the Wilderness Act.
2. Recreation and administrative facilities, such as trailheads, trails, toilets, signs, fire rings, etc., should be compatible with each management intensity.
3. Trails shall be posted as closed to motor vehicles and equipment and to mountain bicycles.
4. Unauthorized facilities and improvements shall be removed as per Forest direction.
5. Wilderness boundaries shall be posted adjacent to trails and cross-country routes entering the Wilderness. Where exterior activities could encroach upon the Wilderness, boundaries shall be posted prior to initiating the activity along the boundary.
6. Wilderness shall be excluded from consideration for development of utility corridors.

J. Protection

1. Fire prevention should be designed to reduce or eliminate human-caused fires and to explain the role fire plays in natural processes.
2. Naturally occurring fires (lightning) shall be considered an inherent part of the general Wilderness ecosystem.
3. All wildfires shall receive an appropriate suppression response. Suppression actions may include surveillance, confinement, containment, or control depending on fire location and burning conditions.
4. Low-impact suppression measures shall be applied. Some forms of mechanized equipment may be used if the result is to lessen the long-term physical and social impact on Wilderness areas from suppression actions.
5. Prescribed fires may be used as a tool to manage ecosystems within the Wilderness in accordance with Wilderness Implementation Schedules for each Wilderness (FSM 2324).

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

MANAGEMENT PRESCRIPTION C1 - SPOTTED OWL HABITAT AREAS (SOHAs) (OLD-GROWTH/MATURE FOREST)

GOAL: The primary goal of this management prescription is the maintenance of suitable habitat areas to meet the needs of spotted owl populations and other species associated with the same habitat type. Additional goals are to: 1) provide a long-term natural gene pool of all species, plant and animal, that are found in this ecosystem; 2) provide an area to study this type of ecosystem; and 3) provide for aesthetic needs.

DESIRED FUTURE CONDITION: Contiguous land areas of 3,000 acres or greater containing the following features: an overstory of mature or overmature trees with deformed, broken or dead tops, large, gnarled limbs with mosses and lichens present, deeply furrowed bark, and internal defects. The canopy should be multi-layered with deciduous and/or conifer trees of one or several age classes. Generally, the stands should include at least four standing dead or defective trees per acre, each with a diameter of 20 inches or greater, along with many downed logs, the majority having a diameter greater than 20 inches. These stands should have an overstory with an average crown cover of 70 percent; understory should be broken and patchy. Evidence of human activities may be present, but does not significantly alter the other characteristics, and would be a subordinate factor in a description of the stand.

APPLICABLE NATIONAL FOREST AREAS: This prescription is applied to areas throughout the Forest which were selected in accordance with the standards and guidelines in the Supplement to the Environmental Impact Statement for an Amendment to the Pacific Northwest Regional Guide (USDA 1988).

MANAGEMENT INTENSITY: The following intensity is appropriate for management of SOHAs:

Designation of SOHA areas in which no timber harvest is programmed (i.e. "dedication"). A management strategy will be prepared for each SOHA to determine if some management activity is appropriate for achieving the Desired Future Condition.

STANDARDS AND GUIDELINES:

General: If habitat is lost to blowdown, fire, or other cause, an assessment shall be done to determine if it is necessary to replace the lost habitat. When deemed necessary, it shall be replaced with suitable habitat, if available. Replacement stands may also be appropriate for meeting the Desired Future Condition.

A. Recreation

1. Proposed developed recreation sites must be evaluated for the impact on the SOHA and developed only if there are replacement stands of equal or better habitat that can be added to the SOHA.
2. Motorized vehicle use should be confined to roads and trails.

B. Wildlife and Fish

1. Any proposed activity within the SOHA stands must be supported by an environmental analysis which clearly displays that the proposed activity will not have a negative impact on the SOHA habitat quality, or that replacement stands of equal or greater habitat quality are available and are being added to the SOHA.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

2. Areas where activity is proposed shall be surveyed according to the most current protocol used by Region 6.

C. Timber

Timber harvest shall not be programmed in these areas. SOHA stands should not normally be salvaged. The dead and down material should be left in place. The exceptions to the above may include the following:

1. Blowdown, etc... may be removed if it is so complete that there is no remaining habitat value, as determined through the needs assessment required under the general standard and guideline above.
2. Individual special product species or trees may be removed if it does not reduce the habitat quality of the area for spotted owls.
3. Removal was determined appropriate to improve the stand for spotted owl needs by an interdisciplinary process which included key agencies and organizations.
4. Fuelwood gathering and cutting compatible with the goals of the area may be permitted.

D. Minerals and Energy

1. Development of new, and expansion of existing, common mineral material sources shall not be permitted unless an environmental analysis shows that the size and shape of the opening and the level of activity would not reduce the value of the habitat within the SOHA.
2. Development of hydropower projects must be compatible with the goal of this prescription.

E. Lands

New permit proposals within SOHAs shall be consistent with the goal of this prescription.

F. Facilities

1. Development or expansion of powerlines, electronic sites, and other special uses that require the creation of openings shall not be permitted unless an environmental analysis shows that the size and shape of the opening would not reduce the value of the habitat within the SOHA. The option exists for the addition of replacement stands of equal or greater biological value. However, due to the width and linear nature of certain types of special uses, the impact on the existing SOHA may be greater than the actual acre loss. This could require a larger number of replacement acres.
2. New roads and trails generally should not be permitted within SOHAs unless no reasonable alternative exists.
3. Structures may be permitted if required habitat characteristics as defined in the Desired Future Condition can be maintained.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

G. Protection

1. Management activities should be designed to prevent pest outbreaks; e.g., blowdown should be removed when consistent with the Desired Future Condition. Pest outbreaks which threaten large portions of a SOHA should be actively suppressed. Biological methods will be favored.
2. Fire suppression response within the SOHA should be *Control*. The means of suppression shall be designed to minimize impacts to the SOHA.

**MANAGEMENT PRESCRIPTION C2 - PILEATED WOODPECKER/
PINE MARTEN HABITAT AREAS
(REPRODUCING PILEATED WOODPECKER HABITAT/MATURE FOREST)**

GOAL: Provide mature forest habitat for the pileated woodpecker and marten, the indicator species for wildlife associated with mature habitats. Additional goals are to: 1) provide a long-term natural gene pool of all species, plant and animal, that are found in this ecosystem, 2) provide an area to study this type of ecosystem, and 3) provide for aesthetic needs.

DESIRED FUTURE CONDITION: Stands of conifer trees of at least 160 contiguous acres for pine martens and at least 300 acres for pileated woodpeckers, with a multilayered canopy of at least two layers. The 300 acres of mature habitat for pileated woodpeckers is designed to provide for reproducing (nesting) needs. (An additional 300 acres outside of this 300-acre core provides for the foraging needs of the woodpeckers. The foraging habitat need not be in a mature forest condition.) The overstory should be dominated by conifers with diameters greater than 21 inches with incised bark, slowed crown-growth, and rounded tops. In addition, some of the overstory trees should have heavy, gnarled limbs with mosses and lichens present. Overstory should have a minimum crown canopy cover of 60 percent, with patchy intermediate and tolerant trees having a diameter greater than eight inches. Additional stand characteristics will be broken-topped trees, at least two standing dead trees per acre with diameters greater than 12 inches, and eight percent of the total standing dead trees greater than 20 inches in diameter. At a minimum, an average of six down logs per acre greater than 12 inches in diameter and over 20 feet long should be present.

APPLICABLE NATIONAL FOREST AREAS: This prescription is applied to areas throughout the Forest which were selected in accordance with criteria in A Report on the Management Requirements for Forest Planning on the National Forests of the Pacific Northwest Region, USDA Forest Service, June 1986.

MANAGEMENT INTENSITIES: The following intensity may be used for management of mature habitat:

Designation of mature habitat areas in which no timber harvest is programmed (i.e. dedication).

STANDARDS AND GUIDELINES:

General: If habitat is lost to blowdown, fire, or other cause, an assessment shall be done to determine if it is necessary to replace the lost habitat. When deemed necessary, it shall be replaced with suitable habitat if available.

A. Recreation

1. Proposed developed recreation sites must be evaluated for the impact on the area and developed only if there are replacement stands of equal or better habitat that can be added to the habitat area.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

2. Motorized vehicle use should be confined to roads and trails.

B. Wildlife and Fish

1. Indicator species for mature forest habitat:
 - a. Pileated woodpecker: This is a management indicator species for mature habitat. Three hundred contiguous acres of mature conifers should be maintained.
 - b. Marten: This is a management indicator species for mature habitat. One hundred sixty contiguous acres of mature conifers should be maintained.
2. Any proposed activity within the area must be supported by an environmental analysis which clearly displays that the proposed activity will not have a negative impact on the area's habitat quality, or that replacement stands of equal or greater habitat quality are available and are being added to the area.

C. Timber

Timber harvest shall not be programmed in these areas. Stands should not normally be salvaged. The dead and down material should be left in place. The exceptions to the above may include the following:

1. Blowdown, etc., may be removed if it is so complete that there is no remaining habitat value, as determined through the needs assessment required under the general standard and guideline above.
2. Individual special product species or trees may be removed if it does not reduce the habitat quality of the area for pileated woodpeckers or pine martens.
3. Removal is determined appropriate to improve the stand for species needs by an interdisciplinary process which includes key agencies and organizations.
4. Fuelwood gathering and cutting compatible with the goals of the area may be permitted.

D. Minerals and Energy

1. Development of new, and expansion of existing, common mineral material sources shall not be permitted unless an environmental analysis shows that the size and shape of the opening and the level of activity would not reduce the value of the habitat within the area.
2. Development of hydropower projects must be compatible with the goal of this prescription.

E. Lands

New permit proposals within the area shall be consistent with the goal of this prescription.

F. Facilities

1. Development or expansion of powerlines, electronic sites, and other special uses that require the creation of openings shall not be permitted unless an environmental analysis shows that

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

the size and shape of the opening would not reduce the value of the habitat within the area. The option exists for the addition of replacement stands of equal or greater biological value. However, due to the width and linear nature of certain types of special uses, the impact on the existing area may be greater than the actual acre loss. This could require a larger number of replacement acres.

2. New roads and trails generally should not be permitted within the areas, unless no reasonable alternative exists.
3. Structures may be permitted if required habitat characteristics as defined in the Desired Future Condition can be maintained.

G. Protection

1. Management activities should be designed to prevent pest outbreaks; e.g., blowdown should be removed when consistent with the Desired Future Condition. Pest outbreaks which threaten the area should be actively suppressed. Biological methods will be favored.
2. Fire suppression response within the area should be Control. The means of suppression shall be designed to minimize impacts to the habitat area.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

MANAGEMENT PRESCRIPTION C3- BALD EAGLE MANAGEMENT AREAS (BEMAs)

GOAL: Provide sufficient habitat for nesting and wintering bald eagles so as to expedite their removal from the Federal and State threatened or endangered species lists. Additional goals are to: 1) provide a long-term natural gene pool of all species, plant and animal, that are found in this ecosystem; 2) provide an area to study this type of ecosystem; and 3) provide for aesthetic needs.

DESIRED FUTURE CONDITION: Optimally, each Bald Eagle Management Area will contain at least two uneven-aged forested stands of three or four layers, each at least 32 acres in size. These stands will be within one-square mile of one another. Also, they will contain 75 to 100 percent conifers, with some of the dominant trees being either Douglas-fir or Sitka spruce greater than 160 feet tall and greater than 50 inches DBH. Canopy closure will be 50 to 70 percent, with 50 to 60 trees per acre being greater than 11 inches DBH, 14 to 16 trees per acre greater than 126 feet high, and 18 to 21 trees per acre 75 to 125 feet high. These stands are generally within 500 feet of a major water body and more than 1,000 feet from significant disturbance. Territories are generally greater than one mile apart. Exceptions to the above conditions will occur.

Winter feeding areas will contain at least two trees per acre greater than 150 feet tall and 21 inches DBH for hunting and perching. These trees will be within 200 feet of the shoreline of feeding waters. Winter feeding areas will be relatively free of disturbance during the months of eagle occupancy.

The core of winter roasts and staging areas will consist of mature or old-growth forest stands with a conifer canopy closure greater than 70 percent. The core will lie within a one-quarter mile area (determined by topography, visibility, and amount of human activity) consisting of vegetation of sufficient structure to minimize line of sight contact with possible disturbances.

APPLICABLE NATIONAL FOREST LANDS: Existing and potential nesting areas identified in the Pacific States Bald Eagle Recovery Plan (16 areas).

Winter Feeding: Areas identified as supporting regular occurrences of eagles at the same location during at least three different years, not necessarily consecutive.

Roosting: Areas identified as colonial roosts or staging areas by the presence of regular concentrations (greater than 10 individuals) of eagles during at least three different years, not necessarily consecutive.

MANAGEMENT INTENSITIES: Designation of habitat in which no timber harvest is programmed (i.e. "dedication").

STANDARDS AND GUIDELINES:

A. Recreation

1. Developed recreation sites proposed within a Bald Eagle Management Area (BEMA) must be evaluated for the impact on the BEMA and developed only if there is a replacement stand of equal or better habitat that can be substituted.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

2. Motorized vehicle use shall be confined to roads and trails.

B. Wildlife and Fish

1. Occupied bald eagle nests should be monitored to determine the effects of planned actions on the nesting birds.
2. Informal consultation shall be initiated with the USDI Fish and Wildlife Service if it is determined that a project may affect a BEMA.
3. A management plan shall be prepared for the 16 sites, existing and potential, identified in the Pacific States Bald Eagle Recovery Plan (1986). Each plan should conform to the requirements in the "Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington (January 1989)."
4. Silvicultural prescriptions should be developed for maintaining or accelerating growth of suitably formed nest, perch, and roost trees within the BEMAs. This generally means managing for old-growth characteristics.
5. When a new bald eagle nest site is discovered on the Forest, a BEMA should be established, and one of the BEMAs which is unoccupied should be deleted. A management plan should be developed for the new BEMA as soon as is practical. The following guidelines should be used when establishing a new BEMA:
 - a. A 32-acre stand should be established around the nest tree. This area should be designated as the primary nest site.
 - b. A 32-acre stand should be selected within one-quarter mile of the primary nest site. This should be designated as the alternate nest site. This stand should approximate the conditions described in the Desired Future Condition.

C. Timber

Timber harvest shall not be programmed in these areas. Bald eagle management areas should not normally be salvaged. The dead and down material should normally be left in place. The exceptions to this rule may include the following.

1. Blowdown, etc... may be removed if it is so complete that there is no remaining habitat value.
2. Individual special product species or trees may be removed if doing so does not reduce the habitat quality of the area for bald eagles.
3. Removal of the timber is determined appropriate to improve the stand for bald eagle needs by an interdisciplinary process, which should include key agencies and organizations.
4. Fuelwood gathering and cutting compatible with the goals of the area may be permitted.

D. Minerals and Energy

1. Development and management of new, and expansion of existing, common mineral material sources shall be discouraged.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

2. Development of hydropower projects must be compatible with the goal of this prescription.

E. Lands

New permit proposals within BEMAs shall be consistent with the goal of this prescription.

F. Facilities

1. Development or expansion of powerlines, electronic sites, and other special uses that require the creation of openings shall not be permitted unless an environmental analysis shows that the size and shape of the opening would not reduce the value of the habitat within the BEMA. The option exists for the addition of replacement stands of equal or greater biological value. However, due to the width and linear nature of certain types of special uses, the impact on the existing BEMA may be greater than the actual acre loss. This could require a larger number of replacement acres.
2. New roads and trails should only be permitted within BEMAs if no other reasonable alternative exists.
3. Structures may be permitted if required habitat characteristics as defined in the Desired Future Condition can be maintained.

G. Protection

1. Management activities should be designed to prevent pest outbreaks; e.g., blowdown should be removed when consistent with the Desired Future Condition. Pest outbreaks which threaten large portions of a BEMA should be actively suppressed. Biological methods will be favored.
2. Fire suppression response within the BEMA should be *Control*. The means of suppression shall be designed to minimize impacts to the BEMA.

MANAGEMENT PRESCRIPTION E1 - TIMBER MANAGEMENT

GOAL: The primary goal is to produce timber on a long-term sustained yield basis. All silvicultural practices and techniques are available for use. Analysis of Integrated Resource Analysis Areas (IRAAs) will be used to schedule timber harvest from suitable lands and for analyzing project alternatives.

DESIRED FUTURE CONDITION: Evidence of land intensively managed for timber production and other forest products is apparent. Tree sizes and mixtures of native species, from seedlings to mature sawtimber, are well distributed and at age classes needed to maintain sustained yield. Most stands are even aged. Harvest generally occurs at culmination mean annual increment (CMAI). Some stands may be managed to provide ecological diversity or old-growth characteristics

APPLICABLE NATIONAL FOREST AREAS: Includes suitable forest lands not allocated to other management prescriptions that preclude or limit timber harvest.

MANAGEMENT INTENSITIES:

Intensity Level One: The following intensities are available when planting is the acceptable method of reforestation. Harvest generally occurs at culmination mean annual increment. Includes fertilization of stands where soils indicate adequate positive response. Assumes growth gains due to use of genetically improved forest stock where appropriate.

| | Intensity | Management Sequence |
|-----|---------------|--|
| 1a. | H-PL-PCT-CT-H | Harvest, Plant, Precommercial Thin, Commercial Thin, Harvest |
| 1b. | H-PL-CT-H | Harvest, Plant, Commercial Thin, Harvest |
| 1c. | H-PL-PCT-H | Harvest, Plant, Precommercial Thin, Harvest |
| 1d. | H-PL-H | Harvest, Plant, Harvest |

Intensity Level Two: The following intensities are available on areas where planting is not an acceptable method of reforestation (e g. rocky soils). No fertilization or genetic gain is planned.

| | Intensity | Management Sequence |
|-----|------------|--|
| 2a. | H-NR-H | Harvest, Natural Regeneration, Harvest |
| 2b. | H-NR-PCT-H | Harvest, Natural Regeneration, Precommercial Thin, Harvest |

Intensity Level Three: Timber management prescriptions which provide for ecological diversity, old-growth characteristics, and/or other resource needs. Management activities may be as for intensities one and two, but significant standing volume and large down material is left on the site after final harvest.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

STANDARDS AND GUIDELINES:

A. Recreation

1. The area may be managed as Roaded Natural, Modified, or Rural on the ROS.
2. Dispersed recreation activities shall be managed to provide a wide variety of recreational opportunities that are compatible with the Desired Future Condition.
3. All management activities should be coordinated in order to minimize adverse impacts upon recreational opportunities and activities.

B. Wildlife and Fish

Management activities shall be conducted so as to meet or exceed Management Requirement specifications for wildlife and fish indicator species.

C. Range

Livestock grazing should be compatible with timber production objectives.

D. Timber

1. Decision to harvest should be supported by an environmental analysis, which includes an economic analysis.
2. Fertilizer should be applied to stands where soil tests indicate positive response will be obtained. Consideration should be given to fertilizing, in the first decade, existing small saw stands that will be thinned in the first decade and existing pole stands that will be thinned in the second decade.
3. Stocking control must be given high priority; precommercial thinning should be scheduled to increase diameter and volume growth.
4. Commercial thinning should be prescribed in suitable forest types.
5. The planting of genetically superior trees should be the expected reforestation practice where applicable. Seedlings should be matched to the appropriate genetic zone.
6. Timely site preparation for artificial regeneration should occur to assure adequate stocking within three years of final harvest.

Timely site preparation for natural regeneration should occur to assure adequate stocking within five years of final harvest.

For either artificial or natural regeneration, consideration should be given to advanced regeneration.

Management of logging residue should be accomplished so as to permit the establishment of a new stand within the desired time period.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

7. Replanting should be scheduled to obtain desired stocking levels.
8. Timber damaged by fire, windthrow, or other catastrophe should be scheduled for harvest to minimize loss due to decay.
9. Consistent with resource objectives, specialized forest products should be marketed to customers as an opportunity to serve the public while generating revenue. Specialized forest products should be viewed as a profitable program. Opportunities for new products should be pursued.
10. Increased timber utilization should be sought through application of directional felling techniques and residue management emphasis.
11. Development of state-of-the art logging systems applications shall be encouraged to improve cost-effectiveness of harvesting and overall quality of land management.
12. Contract preparation and administration shall be done in a manner that maintains a high level of timber utilization and improves overall quality of land management, while following what is recommended and approved in the environmental assessment described in #1 above.

E. Facilities

1. Trails and trailheads should be protected. Trails and trailheads damaged by timber harvesting and/or road construction activities should be restored or replaced.
2. Local road access for timber management should be adequate for logging, post sale activities, and protection. Long-term local roads for timber access should be planned, constructed, maintained, and operated to be economically efficient while protecting resources.
3. During commercial hauling activities, public safety should be provided for.
4. Development of utility corridors should be permitted.

F. Protection

1. Cost-effective slash treatment alternatives to burning should be initiated.
2. Prescriptions will be utilized to manage pests within the constraints of laws and regulations while meeting Forest management objectives. Prescription selection will be based on an environmental analysis.
3. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control* and *Contain*, except in plantations up to twenty years of age where the appropriate response is *Control*.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

MANAGEMENT PRESCRIPTION FI - MUNICIPAL WATERSHEDS

GOAL: The primary goal is to provide high quality water for domestic use over the long-term. A secondary goal is to minimize soil erosion associated with management activities.

DESIRED FUTURE CONDITION: To meet these goals, activities within municipal watersheds should meet or exceed specific Best Management Practices. The watershed will consist of a mosaic of even-aged managed timber stands which represent all age classes up to rotation age. When conflicts exist between watershed management and other resources, the conflict should be resolved in favor of the watershed resource (while meeting Management Requirement specifications).

APPLICABLE NATIONAL FOREST LANDS: This prescription will be applied to those areas designated as municipal watersheds (service to 25 or more people).

MANAGEMENT INTENSITIES: One intensity is appropriate: that necessary to achieve the Goal and Desired Future Condition.

STANDARDS AND GUIDELINES:

A. Recreation

1. Overnight camping and off-road vehicle use is prohibited in Wishkah Watershed.
2. Dispersed recreation activities shall be managed to provide a wide variety of recreational opportunities that are compatible with the Desired Future Condition.
3. All management activities should be coordinated in order to minimize adverse impacts upon recreational opportunities and activities.

B. Timber

1. In the event of a catastrophe (fire, blowdown, insect outbreak, or disease), timber should be harvested in a manner which protects water quality.
2. Water quality must be a major factor in designing and developing timber sale alternatives.
3. Aerial application of fertilizers may be used if analysis indicates that water quality will not be adversely affected.
4. Timber harvesting should be programmed in municipal watersheds so that the acreage harvested per decade does not exceed a level which will generate sediment in excess of a specified threshold of concern, as identified with the Olympic National Forest watershed cumulative effects model.

C. Water, Soil, and Air

1. Local water system officials shall be notified of planned activities within watersheds which have the potential to affect water quality or quantity.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

2. Maintenance and improvement of water quality shall be emphasized over other resources, within applicable laws and regulations.
3. Prior to initiating ground disturbing activities, the Olympic National Forest cumulative effects model shall be used to assess the expected watershed impacts.

D. Minerals and Energy

1. Proposed mineral development activities should be consistent with the Goal and Desired Future Condition of this prescription.
2. Hydropower proposals within an identified watershed must be consistent with the objectives for that watershed.

E. Facilities

1. Facilities development should be designed to minimize impacts to streams.
 - a. Emphasis should be to minimize miles of new road construction, with low-impact roads being preferred.
 - b. Logging systems should be designed to minimize road density.
2. Existing roads no longer needed should be closed or obliterated. Vegetative cover should be established by natural or artificial methods within ten years.
3. Only road construction or reconstruction practices and locations that meet water quality goals shall be allowed.
4. All roads should have measures to control road surface and ditch water.
5. Utility corridors may be developed. Development must be consistent with the goals of this prescription.
6. Truck traffic associated with timber sales may be limited during wet weather to protect water quality.

F. Protection

1. Herbicides and pesticides should not be used. Chemicals should be used as a last resort, and only when site-specific analysis indicates that water quality will not be adversely affected
2. Fire retardant may be used to aerially suppress fires. If used, the retardant must be approved for use in municipal watersheds. The Forest Service shall notify water system officials when retardant has been used.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

3. Fire camps should not be located within a municipal watershed. However, if such a camp is necessary, facilities must be provided so that wastes can be transported outside the watershed for disposal.
4. Prescribed slash burning should be discouraged. Fuels should normally be treated by utilization of material.
5. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control*.

MANAGEMENT PRESCRIPTION F2 - RIPARIAN AREAS

GOALS: The primary goal is to protect, manage, or improve the unique values of riparian areas for wildlife and fish habitat and water quality during the planning and implementation of land and resource management activities. Riparian areas include all lakes, ponds, streams, rivers, and water bodies.

DESIRED FUTURE CONDITION: Activities within riparian areas should result in a diversity of vegetative communities of various species, sizes, and age classes so as to meet the following objectives: (1) maintain stream channel and bank structure sufficient to maintain water quality in Class I, II, and III streams at or near existing levels; (2) provide a permanent source of natural woody debris to maintain fish habitat at or above existing levels (in general, most woody debris which enters a stream comes from the zone within 100 feet of the channel); (3) provide habitat for wildlife species; and (4) provide a filtration zone for up-slope debris or sedimentation.

APPLICABLE NATIONAL FOREST AREAS: Riparian areas consist of aquatic ecosystems and adjacent lands along streams of all classes, lakes, and impoundments. Adjacent lands are those that can directly influence the aquatic ecosystem by contributing shade, organic material, or soil. For planning purposes, the riparian area consists of a zone extending 200 feet on each side of a streamcourse or other water body.

MANAGEMENT INTENSITIES: The degree to which standards and guidelines are implemented within riparian areas will determine the intensity. Implementation of the standards and guidelines described here, in combination with those which are Forest-wide, assures meeting Management Requirement specifications.

STANDARDS AND GUIDELINES:

A. Recreation

1. Proposed developed recreation sites or expansion of existing sites should not be planned within 100-year flood plains
2. Off-road vehicles shall be limited to trails and designated water crossings.
3. Dispersed recreation activities should be managed to provide a wide variety of recreational opportunities that are compatible with the Desired Future Condition.
4. All recreation management activities should be coordinated in order to minimize adverse impacts upon riparian values.

B. Wildlife and Fish

1. Bridges, culverts, and fords that cross anadromous fish-bearing streams shall provide unobstructed passage for adult and juvenile anadromous fish. Road crossings of resident trout streams should also maintain or improve fish passage.
2. Major projects within riparian zones of Class I, II, and III streams shall be coordinated with the Washington Departments of Wildlife or Fisheries, and with applicable Treaty tribes.
3. Riparian vegetation should be maintained along fish-bearing streams to provide, at a minimum, 60 percent canopy cover along streambanks.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

4. Riparian vegetation adjacent to fish-bearing streams should be managed in a manner that will maintain or improve streambank stability.
5. Riparian vegetation should be managed along streams, lakes, ponds, and wetlands to ensure habitat is available for wildlife and fish.
6. Emphasis should be placed on meeting both the habitat needs of cavity-dependent species and State labor safety requirements along or adjacent to streamcourses.
7. Large woody debris should be left in, over, and around fish-bearing streams to provide structural fish habitat.
8. Large conifers should be left within riparian areas of fish-bearing streams to provide a source of future large organic debris in streams.
9. Existing special aquatic habitats should be protected. Additional habitats may be created where appropriate. These habitats include, but are not limited to, secondary and overflow channels and associated ponds and wetlands.

C. Timber

1. Timber harvest shall be programmed when compatible with the Desired Future Condition.
2. Trees should not be felled into stream channels of Class I, II, and III streams. Channels of Class IV streams should be avoided where appropriate. Directional felling, such as tree lining, should be required as needed to minimize damage to riparian values.
3. Logging systems that avoid disturbance to streams and streambanks should be used.
4. Damage to ground cover and understory vegetation, including nonmerchantable size conifers and hardwoods, should be minimized.
5. Riparian areas within the area of influence of planned timber harvesting shall be addressed in the environmental analysis process for effects of planned treatments.
 - a. A site-specific vegetative management prescription, developed by an interdisciplinary team and approved by a certified silviculturist, should be prepared before a harvesting plan (including salvage) is prepared for any riparian influence areas.
 - b. Riparian area vegetation prescriptions should not prescribe use of clearcut harvesting within approximately 100 feet of Class I and II streams.
6. Soils with a high erosion hazard along stream channels should be treated with the following Best Management Practices: 1) full suspension of logs during yarding; 2) minimize slash burning; and 3) leave nonmerchantable trees and other trees needed to protect riparian values. Areas of high risk of slope instability due to loss of root strength should incorporate a geotechnical analysis as part of the interdisciplinary planning process.
7. Skyline corridors that are needed to harvest adjacent lands should be of minimum width (generally 30 feet or less) where they pass through the riparian area. The space between corridors should be maximized.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

D. Water, Soil, and Air

1. Water temperature increases on Class I and II streams should be limited to the quantitative criteria in State Standards. Temperatures on Class III and IV streams should not deteriorate water quality below the water quality goals for downstream Class I and II (and fish-bearing Class III) streams. Exceptions must be based on scientific rationale and full maintenance of existing beneficial uses of the water.
2. Logs and other debris that have become a part of a relatively stable stream channel should not be removed unless prescribed as a stream enhancement measure.
3. Instream flow on National Forest System lands should be protected through critical analysis of proposed water uses, diversions, and transmission applications and renewal of permits. Protection of instream flow needs may be achieved through: filing protests with the State where applications are made that adversely affect National Forest resources; asserting claims for this water under Federal or State laws where applicable; inserting protection measures into special use permits; or reaching formal agreement over use. Purchase of water rights and impoundments are other means for reducing these impacts.
4. Adverse impacts associated with modification of flood plains and wetlands shall be avoided.
5. All management activities should meet Forest Service Region 6 riparian area management goals to protect or enhance water quality, fish, wildlife, vegetation, and other riparian values.

E. Minerals and Energy

1. Common material sources should not be developed in riparian areas.
2. Operating plans for mineral extraction shall include provisions to protect riparian values and meet water quality standards of the State of Washington.
3. Licenses or permits for hydropower projects should include provisions to minimize environmental impacts. Pipelines and transmission lines should be located outside of riparian areas whenever practicable.
4. Minimum instream flow requirements shall be established for all hydroelectric projects in cooperation with appropriate State agencies.

F. Facilities

1. Roads should avoid riparian zones when possible. Location, design, and construction of necessary crossings should be based on methods that minimize adverse impacts to water and fisheries resources.
2. Construction activities in or adjacent to perennial streams should be conducted during summer low-flow season.
3. Culverts installed in large fills should be designed for control or passage of debris. Appropriate erosion prevention criteria for passage of woody debris should be used to prevent erosion of the fill.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

4. Spawning gravels should not be removed from streams.
5. Whenever road construction occurs within riparian areas, erosion control measures must be in place prior to the normal heavy rainfall period.
6. Utility corridors may be developed. Development must be consistent with the goals of this prescription.

G. Protection

1. Fuel treatment and site preparation should be designed to protect hardwood and conifer reproduction, understory and ground cover vegetation, snags, leave trees, and downed material in riparian areas.
2. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control* and *Contain*.

**MANAGEMENT PRESCRIPTION J2 - RESEARCH NATURAL AREAS
(EXISTING AND POTENTIAL)**

GOAL: Provide opportunities for research and education on areas of National Forest land where natural processes are allowed to occur without intervention by people. Potential areas will be identified based on the latest version of the publication Research Natural Area Needs in the Pacific Northwest.

DESIRED FUTURE CONDITION: A land area where the ecological community is evolving through natural processes, and where preservation of natural features and conditions is not jeopardized by human activity. This future condition is identified in the Research Natural Area Establishment Plan for the area.

APPLICABLE NATIONAL FOREST AREAS: The existing Quinault Research Natural Area (RNA) is included, and will be managed to achieve the Desired Future Condition. One potential RNA, Wet Weather Creek, is recommended in this Plan.

MANAGEMENT INTENSITIES: As necessary to meet the Goal and Desired Future Condition for each area.

STANDARDS AND GUIDELINES:

General: While some preliminary planning may take place, the Director for the Pacific Northwest Forest and Range Experiment Station and the Forest Supervisor shall be notified before any specific activity is proposed.

A. Recreation

1. Any new trail development should be only to the level needed to access the area and as agreed to between the Forest and the RNA Committee.
2. Existing recreational trails should be maintained in their current condition or, when appropriate, rerouted outside the RNA boundary.
3. Off-trail dispersed recreation activities should be discouraged.
4. Recreational camping and open fires should not be permitted.
5. Criteria for educational use should: (1) Minimize influence on the natural character of the RNA; (2) minimize influence on existing research activities; (3) minimize size, frequency, and intensity of group use; and (4) maximize provisions for supervising and controlling group activities.
6. Publicity that attracts the general public should be avoided.
7. Developed recreation sites shall be prohibited.
8. Collection of native plants and their seeds and parts shall be prohibited unless a scientifically-based collection permit is approved by the Forest Supervisor.

B. Wilderness

For RNAs, or portions thereof, that fall within designated Wildernesses, provisions of the Wilderness Act must be met (see Prescription B1 -Wilderness).

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

C. Wildlife and Fish

1. Species of special interest should be managed within RNAS according to standards and guidelines for those species Management practices that are consistent with natural ecological processes should be used.
2. Aquatic and terrestrial habitats should not be stocked with non-native fish or wildlife species.
3. Control of excessive animal populations may take place where such populations threaten naturally occurring habitat.

D. Range

No grazing shall be permitted within RNAs for either recreational or commercial livestock.

E. Timber

1. Timber harvest shall not be scheduled.
2. Logging, including fuelwood cutting, should not be permitted following fire, windthrow, insect attack, or disease, unless it is consistent with the objectives of the RNA and is approved by the RNA committee and the Forest Supervisor.
3. Hazard tree removal may only be permitted along roads when required for safety.

F. Water, Soil, and Air

Meet minimum State standards.

G. Minerals and Energy

1. RNAs shall be recommended for withdrawal from mineral entry.
2. FERC licenses or permits should not be recommended.

H. Lands

Existing right-of-way easements shall be honored, but upgrading or issuing new permits should be discouraged.

I. Facilities

1. Dispersed recreation facilities, such as trails, trail shelters, and toilets, should be prohibited unless they are consistent with the Desired Future Condition for these areas.
2. Road construction shall not be permitted unless specifically approved by the RNA committee and the Forest Supervisor.
3. Use of existing utility corridors may be continued. Upgrading or expansion shall be discouraged, and corridors should be phased out as the opportunity occurs.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

4. Development of new utility corridors shall not be permitted unless specifically approved by the RNA committee and the Forest Supervisor.

J. Protection

1. Use of prescribed fire may be considered to perpetuate the ecological conditions the RNA is meant to represent. Prescribed burn plans shall be submitted to the Pacific Northwest RNA Committee for review and recommendations.
2. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control*.
3. Fuels should be allowed to accumulate at natural rates.
4. Pest infestations and animal impacts that may threaten the RNAs or adjacent areas should be monitored.
5. Control or suppression of pest outbreaks may be considered to meet RNA objectives or to prevent excessive damage to adjacent areas. Suppression plans shall be submitted to the RNA Committee and the Forest Supervisor. Biological methods are preferred.

MANAGEMENT PRESCRIPTION J3 - BOTANICAL AREAS

GOAL: Provide opportunities for protection, study, and enjoyment of areas of special botanical interest where unusual plant communities or associations are maintained. Specific goals for the Botanical Areas may differ, and will be defined in a management direction document prepared for each area.

DESIRED FUTURE CONDITION: An area where plant communities/associations are not jeopardized by human activity.

APPLICABLE NATIONAL FOREST AREAS: This prescription is applied to areas currently occupied by unusual plants (including trees) or special plant communities, but not being currently recommended as Research Natural Areas (Prescription J2).

MANAGEMENT INTENSITIES: As needed to meet the Goal and Desired Future Condition as detailed in the management direction document prepared for each area during Forest Plan implementation. Intensities will vary and may include:

- Protection from and discouragement of any human activity.
- Use of the area for research and study purposes.
- Use of the area for public education and interpretation.
- Use of the area for controlled utilization of certain plant species (e.g. mushroom picking).
- A combination of the above.

The general emphasis for each area, which will be supplemented by a site-specific management direction document, is as follows:

Three Peaks Botanical Area: The emphasis will be on protection, interpretation, and scientific research for the unique values and opportunities afforded by this area. Opportunities exist to provide botanical interpretation to the public and educational institutions and to provide scientific research on subjects such as historic climatic reconstruction.

Buckhorn Botanical Area: Emphasis will be on protection and research of the area. Off-site educational activities (such as brochures and talks) may be developed to increase public awareness of the fragile environment, and hence encourage minimum impact camping techniques. The existing system trail would be maintained in its current condition.

Cranberry Bog Botanical Area: Emphasis will be on protection, education, and research. Educational activities and facilities (such as a trail) may occur on-site.

Pat's Prairie Botanical Area: Emphasis will be on education and research. Educational activities and facilities (such as a trail) may occur on-site.

Three O'Clock Ridge Botanical Area: Emphasis will be on protection and research. No development would occur on-site. Off-site information materials would be available to the public upon request.

Tyler Peak Botanical Area: Emphasis will be on protection and research. No development would occur on-site. Off-site public information materials would be available to the public upon request.

"Bill's Bog" Botanical Area: The emphasis will be resource protection and maintaining the area in its natural state while allowing people to continue the historic activity of gathering mushrooms for

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

personal use. Promotion of the area will be minimal, and commercial removal of forest products will not be allowed.

Matheny Prairie Old Western Redcedar Botanical Area: The emphasis will be resource protection and maintaining the ecological integrity of the site, along with minimum development to provide access for interpretation.

Matheny Ridge Old Alaska Yellowcedar Botanical Area: The emphasis will be resource protection and maintaining the ecologic integrity of this Alaska yellowcedar stand.

North Fork Matheny Ponds Old Alaska Yellowcedar Botanical Area: The emphasis will be on resource protection (because of the fragile nature of the wetland communities), elk habitat (as evidenced by the wallows and browsing), and maintaining the ecological integrity of this stand.

Pine Mountain Botanical Area: The emphasis will be on protection of this old Alaska yellowcedar area, while providing opportunities for research and study, public interpretation, and controlled use of some plant species, such as mushroom gathering for personal use.

South Fork Calawah River Botanical Area: The emphasis will be on protection of this river bottom rain forest plant community, while providing opportunities for public interpretive activities.

STANDARDS AND GUIDELINES:

General: A management direction document shall be prepared for each Botanical Area to specify the goals and management intensity appropriate to the area. Occasional vegetative management practices may be implemented to maintain unique plant communities.

A. Recreation

1. Developed recreation sites shall be prohibited.
2. Dispersed recreation use should be consistent with the goals specified for each area in the management direction document prepared for each during Forest Plan implementation.

B. Wildlife and Fish

Utilization of native bird or animal habitat is encouraged. However, control of excessive animal populations may take place where such populations threaten desired plants.

C. Range

Livestock grazing shall not be allowed.

D. Timber

1. Timber harvest, including salvage, shall not be scheduled.
2. Competing vegetation may be removed in order to preserve the continued existence of plant species of special interest.

STANDARDS AND GUIDELINES - MANAGEMENT AREA PRESCRIPTIONS

3. Hazard tree removal may only be permitted along roads when required for safety.

E. Minerals and Energy

Areas shall be recommended for withdrawal from mineral entry.

F. Facilities

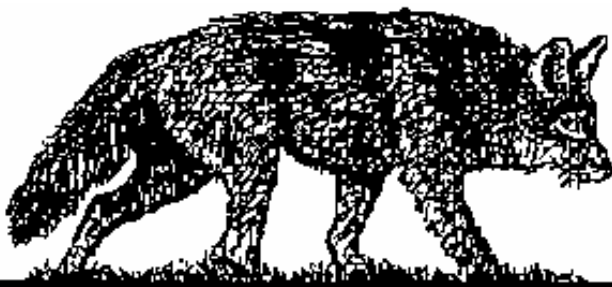
1. Construction of new transportation systems and utility corridors should generally not be allowed. When exceptions are permitted, developments must be consistent with the Goal and Desired Future Condition of this prescription.
2. Structures should not be permitted unless Botanical Area characteristics can be maintained.

G. Protection

1. For moderate to high intensity wildfire (flame length over two feet), the appropriate response (strategy) should be *Control*.
2. No action should be taken against insects and diseases unless an outbreak threatens the plants being protected or is inconsistent with management goals for adjacent areas.
3. Additional restrictions or constraints, such as requiring plant collection permits, may be called for in the management direction document prepared for each Botanical Area.

Chapter V

Implementation of the Forest Plan



Olympic National Forest

Chapter V

IMPLEMENTATION OF THE FOREST PLAN

INTRODUCTION

Implementation of the Olympic National Forest Plan requires transition from an existing management program, with its budget and “targets” for accomplishment, to a new program with a different budget, and other goals and objectives. Because of the length of time needed to prepare budget requests and schedule management activities, it is not feasible to implement the entire Plan in the first year. The Forest will “phase into” a schedule of activities designed to attain the desired output levels through the first decade. Forest programs will go through a transition as activity levels change from current program levels to those of this Plan.

This chapter incorporates direction for management of the Olympic National Forest in three sections under the headings of Implementation Direction, Monitoring and Evaluation Program, and Amendments and Revisions. Collectively, these sections explain how management direction will be implemented, how implementation activities will be monitored and evaluated, and how the Plan can be kept current in light of changing conditions or other findings.

IMPLEMENTATION DIRECTION

Implementation of the Forest Plan occurs through identification, selection, scheduling, and execution of management practices to meet management direction provided in the Plan. Implementation also involves responding to proposals by others for use and/or occupancy of National Forest System lands.

PROJECT SCHEDULING

A schedule of proposed and probable projects is displayed in Appendix A of this document. The projects displayed are an indication of the amount of activity needed to achieve goals and objectives of this Plan.

The listed projects are likely to change as projects are implemented, new information becomes available, or new, more cost-efficient projects are identified to accomplish the objectives. The projects in Appendix A are scheduled in response to the planned output of goods and services and the annual budget needed to achieve the Plan goals and objectives.

CONSISTENCY WITH OTHER INSTRUMENTS

The Forest Plan will supercede, maintain as is, or result in the revision of previous resource management and implementation plans for the Olympic National Forest. See Table V-1 for a list of the major plans being affected. As soon as practical after approval of the Forest Plan (subject to existing rights), the

IMPLEMENTATION DIRECTION

appropriate plans identified in Table V-1 will be revised as necessary to implement the direction contained in the Forest Plan. Future permits, contracts, cooperative agreements, and other instruments for the use and occupancy of National Forest system lands will generally be issued in compliance with Forest Plan requirements immediately on approval of the Forest Plan. Permits, contracts, and agreements existing at the time of Forest Plan approval will be updated and amended to Forest Plan standards whenever possible (see 36 CFR 219.10(e)), subject to valid, existing rights.

Table V-1. Disposition of Existing Olympic National Forest Plans

| Plan Name | Incorporate/Amend | Su- Percede |
|--|-------------------|----------------|
| Soleduck Land use Plan | | X |
| Quinault Land use Plan | | X |
| Canal Front Land Management Plan | | X |
| Satsop Block Land Management Plan | | X |
| Timber Management Plan, Peninsula Working Circle | | X |
| Timber Management Plan, Quinault Working Circle | | X |
| Timber Management Plan, Shelton CSYU | | X |
| Plan Designating Types of Travel Permitted on Trails (1976) | | X |
| Olympic Peninsula Off-Road Vehicle Comprehensive Study (1990) | X | |
| Lake Quinault South Shore Composite Plan | X | |
| Dead and Defective Tree Management Plan | X | |
| Olympic National Forest Road Management Plan | X | |
| 1972 Fire Management Plan | | X |
| Olympic National Forest Trail Plan | X | |
| Memoranda of Understanding - Fire | X | |
| Wishkah Watershed Memorandum of Understanding | X | |
| Quilcene Municipal Watershed Letter of intent | X | |
| Landownership Adjustment Plan | X | |
| Grays Harbor Federal Sustained Yield Unit Policy | X | |
| Shelton Cooperative Sustained Yield Unit Agreement | X | |
| Memoranda of Understanding with Washington State Departments of Fisheries and Game | X | |
| Olympic National Forest Tree Improvement Plan | X | |
| Statewide Comprehensive Wildlife and Fisheries Management Plan | X | |
| Approved Forest Species Management Guides | X | |
| High Lake and Stream Survey Report Parts 1 and 2 | X | |
| Columbia Basin Anadromous Fish Policy and Implementation Guide | X | |

BUDGET PROPOSALS

The Forest Plan's Scheduled projects and activities (presented in Appendix A) are translated into multi-year program budget proposals that identify needed expenditures to achieve the stated Plan objectives and output levels. The schedule is used for preparing budget requests and allocating funds needed to carry out planned management direction. Upon approval of a final budget for the Forest, the annual program of work will be finalized and carried out. Outputs and activities in individual years may be different from those shown in Chapter IV and Appendix A, depending on final budgets.

ENVIRONMENTAL ANALYSIS

Projects and activities described in, or permitted by management direction in this Plan will be further analyzed through the NEPA process. This analysis will be completed as projects are planned for implementation. The environmental analysis for a project shows that: (1) management area prescriptions, standards and guidelines can be achieved, and (2) no new significant impacts have been identified or no new significant impacts have been identified beyond those identified and documented in the Environmental Statement for the Forest Plan, a categorical exclusion from further analysis may be warranted. This means that an analysis file and/or project file will be available for public review, but the analysis will not necessarily be documented in the form of an environmental assessment or environmental impact statement.

MONITORING AND EVALUATION

Monitoring and evaluation will provide the public, the Regional Forester, and Forest officials with information on the progress and results of implementing the Forest Plan. Monitoring identifies key activities and outputs to be tracked during implementation of this Plan. The tracking is done to ensure that activities reasonably conform to management area direction and that outputs and effects satisfy objectives of the Plan.

Monitoring and evaluation requirements of the Olympic Forest Plan are summarized in this section. More detail, in the form of Monitoring Worksheets, is included in Appendix B of this document.

The monitoring activities identified are not intended to spell out all monitoring that is occurring, or may occur, on the Forest. Currently, many activities are being monitored to comply with administrative and legal responsibilities. However, this monitoring is often not essential for the purpose of determining whether activities are meeting the objectives of this Plan. Only those items that are essential in this regard are addressed in the monitoring items identified here. The data collected during monitoring will be evaluated using the Decision Flow Diagram that is included at the end of this chapter.

Monitoring will be designed, amended, or revised to test the resolution and progress of the Issues, Concerns, and Opportunities (ICOs) that the Forest Plan was to resolve. Specific monitoring and evaluation efforts will determine if:

1. Defined goals and objectives are being achieved.
2. Specific program plans and activities are responsive to public issues and management concerns.
3. Management activities are in compliance with Standards and Guidelines.
4. Standards and Guidelines maintain environmental quality.
5. Projected Benefits and Costs assumptions were correct.
6. The Forest Plan needs to be revised or amended.
7. Conditions, information data, and plan assumptions have substantially changed.
8. Monitoring topics, intensities, and intervals are commensurate with risks, costs, and values and are functional and reliable for the needed results and expectations.

MONITORING AND EVALUATION

MONITORING

Each monitoring question is addressed and examined through a series of thirteen (13) items.

1. **Monitoring Topic:** These relate to the public issues, management concerns, and resource management opportunities (ICOs) the Forest Plan was designed to address. A full discussion of the ICOs can be found in Chapter I and Appendix A of the FEIS. They are also summarized in Chapter I of this document. In addition to the monitoring topics identified that respond to ICOs, other topics have been added to ensure complete monitoring coverage.
2. **Threshold of Variability:** This is the variation from the expected outputs, or activities, that is permitted before corrective action or further evaluation is necessary.
3. **Monitoring Questions:** These questions are the core of the intent for monitoring. The essence of each question is, "Are things going as the Forest Plan intended?" Information to answer these will be obtained and analyzed using valid statistical procedures.
4. **Suggested Methods/Information Sources:** For each monitoring question, methods and/or sources of information are suggested. The purpose of this section is only to suggest reasonable methods or sources of information. It is not intended to exclude other methods as long as information will respond to the questions at a reasonable cost.

For single resource monitoring activities, the person responsible for the monitoring activity will determine which technique is best at the time of data gathering. Data will be collected in a manner that ensures meeting statistical parameters suggested by the monitoring questions. For interdisciplinary reviews, the Forest Supervisor will select team members who represent appropriate resources, considering the monitoring question(s) involved. A team leader will be designated. This person will be responsible for preparing and submitting a report of the findings of the monitoring activity.

5. **Unit of Measure:** This is a quantifiable measure of the output, action or effect that is being monitored.
6. **Monitoring Frequency:** For each monitoring question, the frequency with which it must be addressed is indicated. A report will be prepared by the person responsible for the monitoring activity. The report will be submitted to a Monitoring Coordinator, who will summarize findings from all reports due that reporting period (usually a year). This summary report will be submitted to the Forest Supervisor. Copies of the summary report, and of the individual reports, will be kept on file at the Forest headquarters. The summary report may also be distributed to other interested agencies and the public.
7. **Precision and Reliability:** This indicates the validity and exactness with which monitoring data are to be collected. Precision is the exactness or accuracy of measurement, while reliability is the expected probability that information acquired through sampling will reflect actual conditions. Precision and reliability are rated as follows:

High - Maximum variation within 10 percent of sample mean.
Moderate - Maximum variation within 33 percent of sample mean.
Low - Maximum variation within 50 percent of sample mean.

8. **Data Storage:** This is where collected monitoring data, analyses, and evaluation reports for the monitoring question are stored. The information will be stored for the duration of the Forest Plan.

MONITORING AND EVALUATION

9. **Reports Due:** This is the date by which reports responding to monitoring questions must be submitted. Suggested possible causes for unfavorable reports are listed. Unfavorable reports are those which indicate that actual conditions are outside expected results of the Forest Plan.
10. **Cost:** Costs are estimated and shown as an annual cost for all monitoring activities associated with each monitoring question. When work or reports are not done on an annual basis, costs shown are the average annual cost over a ten-year period. Included in parentheses are the year and expected cost for the actual monitoring activity. Example “\$1,000 (year 5 - \$5,000 and year 10 - \$5,000)” means a total annual cost of \$1,000, but \$5,000 will be needed in year 5 of the plan period and another \$5,000 in year 10.

The component of total annual cost which is currently included in normal operating costs (if any) is shown in parentheses. Ex: \$3,000 (\$2,000) means a total annual cost of \$3,000 of which \$2,000 is currently included in the Forest’s operating budget.

11. **Responsibility:** The person responsible for responding to the monitoring question.
12. **Research Needs:** Indicates that additional research is needed to aid in fully responding to the monitoring question.
13. **Inventory Needs:** Indicates that additional data is needed to fully respond to the monitoring question.

Table V-2 provides a summary of the monitoring worksheets included in Appendix B. Not all steps have been summarized.

EVALUATION

When a Monitoring Evaluation Question is answered, “yes”, then associated activities will proceed. When a Monitoring Question is answered, “no”, then further investigation will occur in order to determine whether there is a need to: 1) take corrective action in implementing Forest Plan direction, 2) amend the Forest Plan, 3) revise the output schedule, or, 4) initiate revision of the Forest Plan. This evaluation will proceed according to the flow diagram displayed in Figure V-1, Decision Flow Diagram for the Evaluation of the Forest Plan.

A designated monitoring coordinator will prepare an annual evaluation report from the Decision Flow Diagram. As applicable, the evaluation report will:

1. Summarize the responses to each monitoring question which is to be answered in the current year.
2. Identify situations where further evaluation is needed, and describe the action which will be taken.
3. Describe the status of evaluations which are underway, including the identity of the person who is responsible for conducting the evaluation, and its projected timeframe.
4. Summarize the findings of evaluations which were completed during the year, and describe the actions which were taken in response to these findings.
5. List additional research needed to support the management of the Forest.

AMENDMENT AND REVISION

The Forest Plan incorporates legal mandates, professional judgment and the public's stated concerns into a future vision of the Forest. It charts a path for getting there by developing management goals and objectives and translating them into management direction in the form of standards and guidelines for management areas on the Forest. National Forest planning is a dynamic process, and the products—Forest Plans—are similarly dynamic. Forest Plans can and should be modified if conditions warrant. As management goals are applied on the ground or as new information is learned about resources, the Plan's goals, and objectives, or activities the goals generate, may no longer be appropriate. In such instances, activities may be tailored to fit the resource, or planning objectives as stated in the Plan may be amended. Plans do not apply direction in site-specific management activities. It would be unrealistic to try to identify, analyze, and schedule the myriad projects or activities that occur on a National Forest. Instead, this type of site-specific planning occurs at the project-level planning stage.

Additional plans and/or management direction may be needed in the future to guide implementation of the Olympic Forest Plan. Should the need for these arise, they will be incorporated through amendment or revision. The Forest Supervisor may amend the Forest Plan Based on an analysis of objectives, standards, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a pro-posed amendment would result in a significant change in the Plan. If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same pro-cedure as that required for development and approval of a Forest Plan. If the change is determined not to be significant, the Forest Supervisor may implement the amendment following appropriate public notif-ication, such as notices in local newspapers, and satisfactory completion of NEPA procedures. Specific written notice may also be sent to organizations and individuals who have expressed a desire to be kept informed of such changes. (Refer to the Interim Directive, Chapter 1920, Forest Service Manual, under 1922-Forest Planning.)

A Forest Plan shall ordinarily be revised on a ten-year cycle, or at least every fifteen years. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly or when changes in RPA policies, goals, or objectives would have a significant effect on Forest-level programs. In the monitoring and evaluation process, the inter-discip-linary team may recommend a revision of the Forest Plan at anytime. Revisions are not effective until considered and approved in accordance with requirements for development and approval of the Forest Plan. The Forest Supervisor shall review conditions on land covered by the Plan at least every five years to determine whether conditions or demands of the public have changed significantly.

The management direction in this Forest Plan was developed prior to the U.S. Fish and Wildlife Service's (FWS) listing, effective July 23,1990, of the northern spotted owl as threatened and subsequent anticipated development of a recovery plan for the owl. Implementation of this Forest Plan will comply with the Endangered Species Act, as interpreted through consultation with the FWS, any interim management guidance, and eventually the recovery plan.

Forest Plan implementation actions will be scheduled so that conflicts with recommendations of the Interagency Scientific Committee will be avoided until the Chief makes a decision on the Regional Guide, as mandated by Section 318 of the Interior Appropriations Act of 1990.

FIGURE V-1
DECISION FLOW DIAGRAM

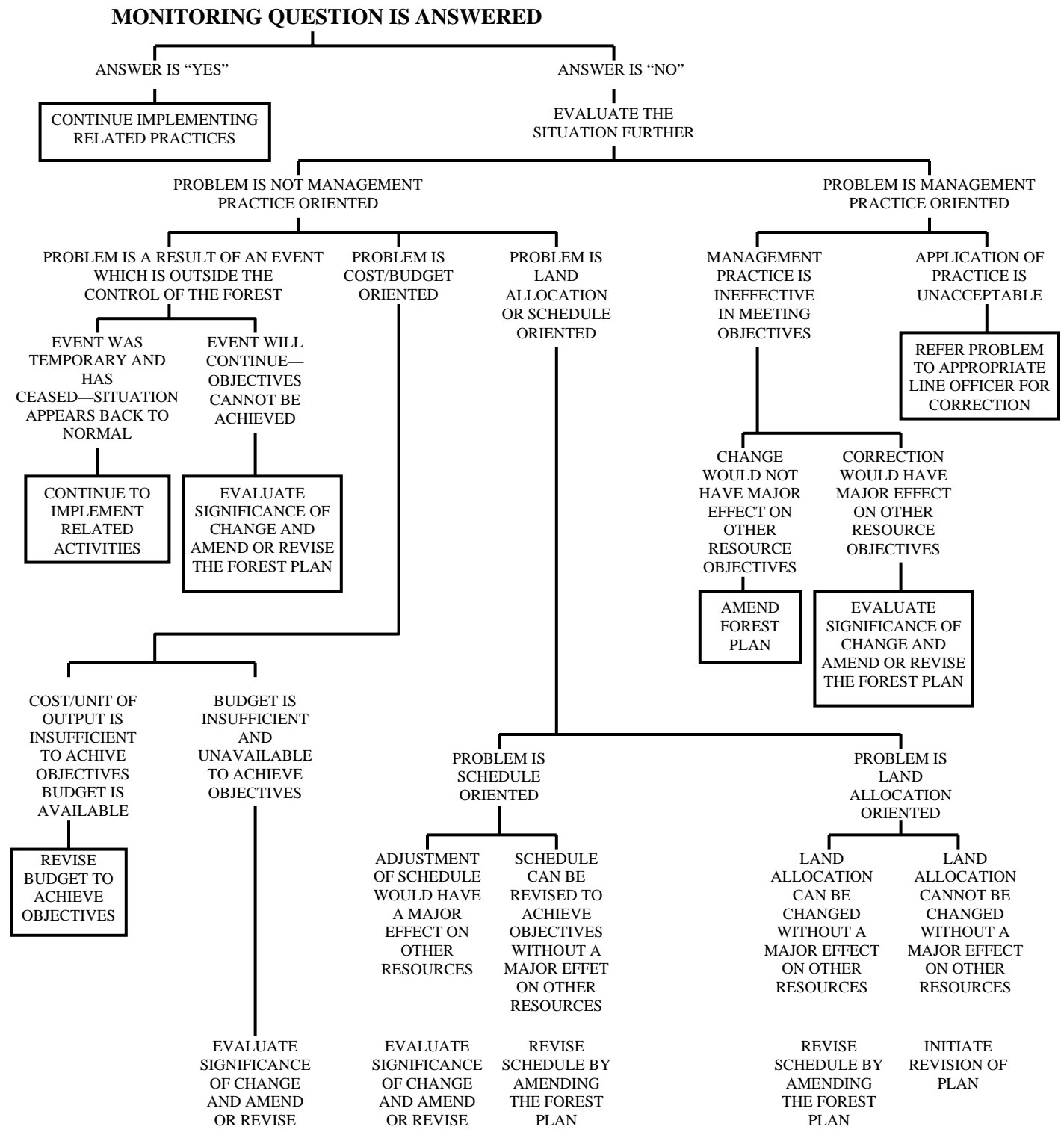


Table V-2. Summary of Monitoring Items

| Monitoring Topic | Monitoring Question | Unit of Measure | Monitoring Frequency | Precision/ Reliability | Reports Due | Annual Cost \$ | Responsibility | Threshold of Variability |
|---|--|---|------------------------|---------------------------|-----------------|-------------------|-----------------------------------|--|
| Semi-Primitive and Primitive Recreation | Are Primitive, Semi-Primitive Non-Motorized and Semi-Primitive Motorized ROS areas provided? | Acres and ROS criteria | As projects completed | High/High | End of 5th year | 200 | Recreation Staff | No reduction in ROS classification acres within recreation allocations |
| Trails | Are trails objectives met? | # of conflicts and damage | Annually | High/High | Annually | 10,000 | Recreation Staff | Zero documented incidents of user conflict or resource damage |
| Scenery | Are VQOs met? | Acres by VQO | Annually | High/ Moderate | Every 5 years | 3,000 | Recreation Staff | 10% of acres not in compliance with VQOs |
| Developed Recreation | Are sites receiving heavy use? | RVD and PAOT | Annually | High/High | Annually | 10,000 | Recreation Staff | Use is less than 40% of Theoretical Capacity |
| Wilderness | Is Wilderness character maintained? | Limits of acceptable change indicators | Annually | High/High | Annually | 10,000 | Recreation Staff | Change that is equal to or less than defined limits and indicators of limits |
| Off Road Vehicle (ORV) Use | Are adverse effects occurring? | Number of Violations, conflicts, & damage | Annually | Moderate/ Moderate | Every 3 years | 8,000 | Recreation Staff | Zero documentation of violations, conflicts or damage |
| Wild and Scenic Rivers | Are attributes maintained? | Wild and Scenic River classification criteria | As submitted, annually | High/High | Annually | 500 | EA Coordinator & Recreation Staff | Zero degradation of Wild and Scenic attributes |

Table V-2. (Cont'd.)

| Monitoring Topic | Monitoring Question | Unit of Measure | Monitoring Frequency | Precision/ Reliability | Reports Due | Annual Cost \$ | Responsibility | Threshold of Variability |
|---|---|---|--------------------------------------|----------------------------|---|-----------------------|-------------------------------------|--|
| Cultural Resources | Are surveys performed? | Projects and Acres | As projects implemented | High/High | Annually | 5,000 | Recreation Staff | Zero cases without survey work and SHPO consul- tation |
| Coordination with American Indians | Are programs and Indian concerns coordinated? | Contacts | Ongoing with annual summary | Moderate/ High | Annually | 5,000 | Forest Leadership Team | No incidents of conflict Between For- est Policy and Indian rights, no deviation permitted in contacts/ coordination |
| Cultural and Histor- ical Site Protection | Are cultural resource properties (unevaluated or eligible for inclusion to the National Register of His- toric Places (being ade- quately protected? | Sites | Annual inspections | High/High | Ann Acc Reports | 2,000 | Recreation Staff | No damage or loss of values tied to National Reg- ister criteria |
| Cultural and Histor- ical Site Rehabilita- tion | Are repair, stabilization or rehabilitation projects scheduled and performed as necessary? | Secretary of Interior Standards and Guidelines | Annually and as implemented | High/High | With building mainte- nance surveys and reports or annually | 4,000 | Engineering and Recreation Staff | No deviation permitted for inspections and no dam- age or loss of values |
| Wildlife Habitat | Are management indicator species using habitat areas set up for each species? | SOHA occupancy (% occupied) Pileated Woodpecker & Marten area occupany (% Occupied) | Annually – 80% Annually – 50% | High/High High/High | Annually | 120,000 25,000 | Fish & Wildlife Program Manager | +/-20% of occupancy or expected Populations |

Table V-2. (Cont'd.)

| Monitoring Topic | Monitoring Question | Unit of Measure | Monitoring Frequency | Precision/ Reliability | Reports Due | Annual Cost \$ | Responsibility | Threshold of Variability |
|----------------------------|--|--|----------------------|---------------------------|----------------------------------|-------------------|------------------------------------|--|
| Wildlife Habitat (cont) | Are management indicator species populations +/- 20% of that predicted in Habitat Capability Index? | Percent being used by Primary Cavity Excavator | Annually/25% | High/High | 1 report per 5 year period | 15,000 | Fish & Wildlife Program Manager | +/- 20% of predicted populations |
| | | % of deer and elk in winter range | Annually/10% | Moderate/ Moderate | | 15,000 | | |
| | | Number of bald eagle nests active | Annually | High/High | | 7,500 | | |
| | | Number of owls | Annually – 80%/10% | High/High | | 12,000 | | |
| | | Number of Pileated Woodpeckers and Marten | Annually/10% | Moderate/ Moderate | | 21,000 | | |
| | | Number of birds | Annually - 10% | Moderate/ Moderate | | 9,000 | | |
| | | Number of elk and deer | Annually | Moderate/ Moderate | | 2,000 | | |
| | | Number of nests | Annually | High/High | | 7,500 | | |
| Fish Habitat | Is habitat capability being maintained? | Fish habitat capability | Annually | High/High | Annually | 140,000 | Fish & Wildlife Program Manager | +/- 10% of expected capability |
| | Are projects implemented? | Percent of projects implemented | Annually | High/High | Annually | 64,000 | Fish & Wildlife Program Manager | +/- 20% deviation of planned pro- gram |
| | Are S&Gs adequate and being implemented? | Reports | Annually | High/High | Annually | 20,000 | Fish & Wildlife Program Manager | Less than 10% of planned projects do not meet standards |

Table V-2. (Cont'd)

| Monitoring Topic | Monitoring Question | Unit of Measure | Monitoring Frequency | Precision/ Reliability | Reports Due | Annual Cost \$ | Responsibility | Threshold of Variability |
|--------------------------|--|--|--------------------------|---------------------------|-------------------------|-------------------------|--|---|
| Water Quality | Are water resource-related BMPs and S&Gs being implemented? | Project review report | Annually | Moderate/ High | Annually | 8,000 | Forest/District Hydrologist | 5% of projects do not meet S&Gs |
| | Are water resource-related BMPs and S&Gs effective? | Turbidity (NTU) and water chemistry (mg/l) | Daily/Periodic | Moderate/ High | Annually | 38,000 | Forest/District Hydrologist | Zero deviation of Water Quality Standards |
| | Are watershed improvement projects being so-complished? | % of projects implemented | Annually | High/High | Annually | 1,000 | Watershed Staff Officer | 20% deviation of planned Projects |
| Water Cumulative Effects | Are coefficients used in analysis valid? | Tons/year | Continuous | Moderate/ High | Annually | 25,000(I), 38,000(0) | District Hydrologist or Soil Scientist | 30-40% deviation in coefficients |
| | Are cumulative effects within range predicted in FEIS? | Acres Tons/Year | 4-8 years continuous | Moderate/ High | Annually | 17,000(I), 40,000(0) | Forest/District Resource Specialists | 30-40% deviation from predicted effects |
| Riparian Areas | Are activities in riparian areas as planned? | Project review reports | Annually | Moderate/ Moderate | Annually | 20,000 | Watershed Staff | 10% of planned projects do not meet S&G requirements |
| Soil Productivity | Is less than 20% of area disturbed? | Percent disturbed | 25% of projects annually | Moderate/ Moderate | Annually | 10,000 | Watershed Staff | Adverse effects over less than 20% of Management Area |
| Air Quality | What are effects of prescribed burning and is State SIP Program Effective? | Incidents | 100% | Moderate/ High | Each project & incident | 3,600 | Fire Staff | No incidents that do not meet standards for Class I control areas |

Table V-2. (Cont'd.)

| Monitoring Topic | Monitoring Question | Unit of Measure | Monitoring Frequency | Precision/ Reliability | Reports Due | Annual Cost \$ | Responsibility | Threshold of Variability |
|---------------------------------------|---|---|----------------------|--|----------------------------------|-------------------|--|--|
| Costs and Values | Are allocations and prescriptions still cost-efficient? | Dollars | Annually | High/High for costs, Moderate/ Moderate for values | Annually and every 5 years | 1,150 | Administrative Officer and Forest Analyst | Changes that are less than 25% in experienced/ traditional costs and values |
| Budgets | Are projected Forest Plan programs and budgets realized? | Dollars | Annually | High/High | Annually | 1,000 | Planning Staff | Budget levels that deviate less than 25% from previous year |
| Social and Economic Effects | Are results consistent with predictions and expectations? | Numerous | Annually | High/High | Annually | 1,000 | Planning and Administration Staff Officers | (1) Payments to counties and US Treasury vary less +/- 20% (2) Unemploy- ment less than 12% (3) Local income level changes less than +/- 20% (4) New hous- ing starts +/- 35% (5) Significant changes in lifestyles, values, env- ironmental factors |
| Standards and Guidelines (General) | Are S&Gs implemented and do they meet objectives? | Program element or management unit S&G review | Every 2 years | High/High | Every 2 years | 5,000 | Staff and FLT | No results or standards less than prescribed Standards and Guide- lines |

Table V-2 (Cont'd.)

| Monitoring Topic | Monitoring Question | Unit of Measure | Monitoring Frequency | Precision/ Reliability | Reports Due | Annual Cost \$ | Responsibility | Threshold of Variability |
|---------------------------------------|---|--------------------------------|--|---------------------------|----------------|--------------------|--|--|
| Environmental Analysis | Are proposed activities in compliance with NEPA? | Reports reviewed | As submitted | High/High | As reviewed | 10,000 | Forest EA Coordinator and District Rangers | Zero cases without NEPA documentation |
| | Was project implementation as stated in NEPA documentation? | Project review | Scheduled activity reviews | High/High | As reviewed | 1,000 | Activity Review Team | Zero cases not implemented as planned |
| Road Mileage | Does transportation system serve objectives and projections? | Miles of road | Annually | Moderate! High | Every 2 years | 5,000 | Engineering Staff | 15% of road miles constructed do not meet resource mgt. objectives |
| Minerals Development & Rehabilitation | Are Standards and Guidelines reasonable and effective? | Cases | Post operative and during Activity Reviews | Moderate/ Low | Every 5 years | 500 | Lands and Mineral Staff | No cases with inadequate protection measures or substandard rehabilitation |
| Insect & Disease Control | Are destructive insect and disease problems remaining below acceptable damage levels? | Frequency of infection centers | Bi-annual aerial flights | Medium | Bi-annual | \$1000 | Regional PPM | Less than 100% increase in infection frequency |
| | | Acres of infection centers | Ongoing stand exams | High | Bi-annual | \$2,000 to \$4,000 | Timber Staff | Less than 10% by area or less than 2 infection centers per acre |
| Timber Offered | Is Forest offering of chargeable and nonchargeable volume commensurate with ASQ and TSPQ? | MMCF/MMBF | Annual | High | Annual | \$1,500 | Timber Staff | Deviation of cumulative ASQ or TSPQ less than 15% |

Table V-2. (Cont'd.)

| Monitoring Topic | Monitoring Question | Unit of Measure | Monitoring Frequency | Precision/ Reliability | Reports Due | Annual Cost \$ | Responsibility | Threshold of Variability |
|--------------------------------------|---|-------------------|---|---------------------------|----------------|-------------------|----------------|---|
| Silvicultural Practices | Are stands adequately restocked within three years? | Acres/years | Annual | High | 3 years | \$1,200 | Timber Staff | Average re-generation period less than 3.5 years |
| | Is precommercial and release completed according to silvicultural prescriptions? | Acres/years | Annual | High | Annual | \$600 | Timber Staff | 15% from prescribed levels |
| | Is fertilization completed on soils with demonstrated response according to silvicultural prescriptions? | Acres | Annual | High | Annual | \$200 | Timber Staff | 20% from prescribed levels |
| Silvicultural Practices (cont) | Is genetic stock utilized for reforestation in the appropriate zone? | Trees per acre(s) | Annual | Medium | 3 years | \$600 | Timber Staff | 25% from prescribed levels |
| | Are clearcuts within size limits and are objectives for variety, dispersal openings and vegetative stages effective? | Acres | Annual | High | 3 years | \$400 | Timber Staff | No deviation permitted. No cases where Standards and Guidelines for variety, dispersal, etc were ineffective or not met |
| | Are harvest methods commensurate with Forest Plan objectives? | Acres | Annual | High | 3 years | \$500 | Timber Staff | Prescribed harvest methods less than +/- 25% |
| Lands Suitable for Timber Management | Are lands which were identified as not suitable for timber production still unsuitable? (And lands which were identified as suitable for timber production still suitable?) | Acres | 5 years | High | 5 years | \$2,000 | Timber Staff | 5% net deviation of base |
| Old-growth | Are acres as expected? | Acres | Annually, first 5 years, then every 5 years | High/High | Annually | 2,500 | Timber Staff | 10% Change from expectation |

Table V-2. (Cont'd.)

| Monitoring Topic | Monitoring Question | Unit of Measure | Monitoring Frequency | Precision/ Reliability | Reports Due | Annual Cost \$ | Responsibility | Threshold of Variability |
|------------------|---|--|----------------------|---------------------------|----------------|-------------------|------------------------------------|---|
| Native Plants | Are native plant species and communities receiving adequate protection? Are introduced plant or animal species adversely impacting native plants? | Number, distribution and condition trend of sensitive or unusual species and communities | Annually | Moderate/ Moderate | Annually | 12,000 | Resource Staff and Forest Botanist | No declining trend in condition and numbers |